THE EFFECT OF CUSTOMS TARIFFS ON THE COST OF PROVIDING DENTAL CARE IN CANADA

A Report prepared for the
Minister of National Health and Welfare
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SUMMARY

Concern has been expressed by the Canadian and provincial dental associations and by individual dentists that the protective tariffs applied to imported, dutiable dental supplies add significantly to the aggregate cost of dental care for Canadians in relation to the minimal job protection and stimulation of domestic industry achieved by the tariffs. This concern was aroused by the re-imposition of duties in the October 28, 1980 federal budget on a major group of dental supplies (e.g. filling materials) which are used in dental reconstructive surgery. The re-imposition occurred at a time when the price of one of the principal materials affected, silver (amalgam) alloy, had reached an unprecedented and, as it turned out, peak level.

The removal of the tariffs had resulted from a successful appeal to the Tariff Board in February 1979, in which it was agreed that these restorative dental materials qualified as duty-free under tariff item 47810-1 (or 47900-1) as materials used in reconstructive surgery. In the October 28, 1980 budget these dental materials were removed from the duty-free status they had enjoyed since November 9, 1979 (about 11 months) when tariff item 47810-1 was amended specifically to exclude dental prostheses. This explicit action restored the practice of applying tariffs to these dental materials as had been done for at least 16 years prior to 1979.

Because of the debate surrounding this issue and the uncertainties about the actual health cost impact of the tariffs, dental researchers at the University of Toronto were asked by the Department of National Health and Welfare to conduct an independent study on the effect of the protective tariffs on Canadian dental care costs and on the sources of increasing costs of providing care. Also, the tariffs' influence on national and international economic considerations was to be studied.

To accomplish these goals private dental practice (provincial dental associations and practising dentists), public, direct service dental programs and the dental trade industry were surveyed. A health economist was asked to examine the broader economic questions contained in the study's terms of reference.

The impact of the protective tariffs on costs was estimated by using these three different approaches and sources. The total retail market in Canada for consumable supplies and materials, instruments and equipment is about $150 million annually, of which $55 million is for consumables. Imported materials, especially from the United States, comprise about 64 per cent of the products used by dentists and a variety of other dental personnel and by dental laboratories in Canada. Most imported instrument and equipment, and some consumable supplies are duty-free. The trade structure involves wholesale and retail markups on consumable supplies which for the imported dutiable goods exaggerate the effect of the duty beyond that actually collected by government.

In the retrospective analysis of data from the private dental practices surveyed the duty on all imported supplied per dentist per year was between $178 and $331, depending on whether only the governmental duty ($178) or this plus the industry's markup ($153) on this duty was considered. These duty costs represented, respectively, about 2.8% to 5.2% of total supplies or 0.18% to 0.39% of gross income. Nationally these costs would amount to from $1.7 to $3.1 million. (These costs, however, do not include the later-mentioned duties for imported materials utilized in dental laboratories which are passed on the patients in the bills for prosthetic appliances.)

A similar retrospective analysis of three public, direct service dental programs during two of eight program years indicated that expenditures on dental supply items were 10% to 11% higher because of the protective tariffs. This would translate to between 0.32% and 0.46% of individual program year costs (and 1.2% in one instance). In one such program it was shown that the reconstructive surgery tariff items would have resulted in an increase of about 31¢ over the reported cost of $69.90 per enrolled child.

Using the new (lower) dental tariffs proposed in the November 12, 1981 federal budget, the future impact on dental care costs was estimated with data provided by Canada's dental trade and laboratory-industries. The estimated duty collected annually by government would be $260 per dentist or $1.96 million nationally. In making these estimates about one-third of these costs was attributed to the imported supplies and materials used directly in dental practice, and the other two-thirds arose from the imported materials used by dental laboratories in the fabrication of prosthetic appliances. It is estimated that the duty and the industry's markups on this duty will average to about $440 per active dentist and that $3.26 million will be passed on to patients. Overall, the duty costs to be passed on to patients appear to be from $1.96 to $3.26 million annually. This represents between 0.17% and 0.33% of the estimated total annual dental expenditures in Canada of $1.2 billion.

In summary, the examination of the industry showed that the potential Canadian market is small and may shrink further with future improvements in oral health status and in materials. Therefore, domestic manufacturers must export their products and/or become localized and highly specialized and/or capture a very large share of the Canadian market to survive. Thus protective tariffs are only one of many factors that have to be considered in the decision to manufacture in Canada.

In both public and private practice salaries were found to be the most significant factor in the increasing costs of providing care. The cost of dental supplies had a relatively much lower influence.

The examination of the economic questions showed that there were some advantages to dental care providers arising from domestic production. These included the possibility that the domestic production

of materials, which have a fairly large share of the market, may provide an incentive for importers to keep their prices similar to the Canadian price. Also, the availability of domestically produced goods may protect dental care providers against fluctuations in foreign exchange rates. However, in regard to Canada's balance of trade, the domestic dental market is so small that it cannot be identified in relation to the overall picture. Nevertheless, it is believed that the re-imposition of the tariffs did prevent our foreign trade balance from worsening.

The tariffs may apparently add from $2 to $3.3 million to Canada's annual dental care costs. This is less than one-half of one per cent of the nation's current dental bill. The tariffs do offer and have the potential to offer in the future other possible counter-balancing benefits (small and indeterminate though these may be) directly to Canadian industry and to dental care providers. On the other hand, if tariffs were removed the potential loss of jobs in manufacturing amalgam, denture materials, waxes and other consumables and the loss of a made-in-Canada price and of a secure Canadian supply of these materials are negative aspects that must be considered. On balance the tariffs are seen as necessary to encourage domestic manufacturing in the small Canadian market.

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The chapter on private practice relied on the co-operation and data from the Canadian Dental Association and from eight provincial dental associations/societies/colleges, and especially the executive directors of these agencies. As well, the advice and unique data provided by 15 dentists in private practice in five provinces across the country was essential to this chapter's completion and is very much appreciated. No dentist who was approached refused to co-operate; this was a pleasant finding and experience for us. In order to gather and analyze these data from private practice we relied on the help of four excellent research associates: Dr. M.E. Bullen, Mrs. C. Andriash, Mrs. S. Bassett and Miss T. Krievins.

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The dental manufacturing and supply trade in Canada and the U.S.A. was most helpful in assisting in the development of the data for the chapter on dental supplies. The individuals and their respective organizations were as follows: -

Dental Manufacturers and Trade

Dr. D. Rutherford - President, Dental Industries Association of Canada.
- President, Ash Temple Ltd., Toronto.
- (14 supply houses across Canada)

Mr. J. Markle	- General Manager, - Denco Ltd., Toronto. - (12 supply houses in Canada)
Mr. B. Howie	- Ontario Manager, - Health Co. (Canada) Ltd., Toronto. - (10 supply houses across Canada)
Mr. K. Croney	- National Refining Co., Toronto. - (4 supply houses across Canada)
Mr. H. King	- General Manager Kerr (Canada) Ltd.
Mr. R. Heaps	- General Manager, Dentsply Canada Ltd., Toronto.
Mr. S. Touzel	- L.D. Caulk Canada Ltd., Toronto.
Mr. K. Kempnich & Mr. D. Swift	- General Manager, - Ivoclar Ltd., Mississauga.
Mr. W. Latchem	- General Manager, Beavers Dental Products, Morrisburg, Ontario.
Mr. R. Paquin R. R. Viau	- Vice-President - General Manager, Johnson and Johnson Dental Products Ltd., Montreal.
Mr. B. Lent	- Export Manager, Unitek Ltd., Monrovia, Ca., U.S.A.
Mrs. M. & Mr. G. Havlovic	- Unident Ltd., Halifax, N.S.

Trade Associations - Canada and U.S.

Mr. E. Benton	- Executive Director, Dental Industries Association of Canada
Mr. N. Petrovic	- Executive Director, American Dental Traders Association
Dr. E. Schills	- Executive Director, Dental Manufacturers of America.

Other Sources on Materials Usage

Miss V. Kilpen	- Supplies Officer, Faculty of Dentistry, University of Toronto.

Dr. J. Stanford - Secretary, Council on Dental Materials and Devices, American Dental Association, Chicago, U.S.A.

Dr. R. Hicks - Committee on Taxation, Canadian Dental Association, Vancouver.

Dr. D. Jones - Professor of Dental Materials, University of Dalhousie, Halifax.

Dr. D. Chaytor - President, Association of Prosthodontists of Canada, University of Dalhousie, Halifax.

Dental Laboratories

Mr. E. Riedel - Manager, Shaw Laboratories, Toronto.

Mr. T. McNeil - Manager, Shaw Laboratories, Vancouver.

Mr. B. Morley - President, B.C. Dental Laboratories Association Fine Arts Laboratories, Vancouver.

Mr. P. McKeon & Mr. A. Ng - Regional General Manager and Administrative Manager, Ando Laboratories (Division of Heritage Dental Laboratories) Vancouver.

Mr. F. Bryan - Secretary, Commercial Dental Laboratories Conference, Toronto.

Mrs. G. Havlovic - Canadian Associated Laboratories Ltd.

Mr. R. Rennie - Vice-President, Dental Laboratory Association of Alberta, Capital Ceramics, Edmonton.

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APPENDIX I* - Brief of the Canadian Dental Association to the Standing Senate Committee on Banking, Trade and Commerce, June 1981 89

Editor's Appendix I* - Information on Amendments to the Excise Tax Act and Lists of Regional Customs Offices and Regional Excise Offices.

Editor's Appendix II* - Dental Prosthetic Tariff Items, effective pending passage by Parliament, as of November 12, 1981 as shown in Schedule "A" of the Customs Tariff.

* **Note:** **The editor's footnotes and the editor's appendices were added by federal government officials and not by the report authors Lewis, Leake and Smith.**

1. INTRODUCTION AND BACKGROUND

1.0 Summary of the Organizational Structure of Dentistry in Canada

There are approximately 11 000 to 12 000 licensed dentists in Canada, not all of whom are in active practice. About 10 per cent of these dentists are certified specialists. Although public, direct service dental programs operate to varying degrees in most regions of Canada, most of the dental care is provided by independent private practitioners operating on a fee-for-service basis. Probably most dentists operate solo practices although group and cost-sharing arrangements are increasing. Practice incorporation is growing and in some provinces 50% of dentists are incorporated.

The Canadian Dental Association is a federation of the 10 provincial dental associations/societies/colleges. In eight of 10 provinces these provincial bodies serve the dual functions of voluntary professional association and control of licensure and other dental regulations. The Canadian Dental Association has 8500 dentist members.

Perhaps the most significant feature of the dental care system in Canada is the rapid increase in third party involvement in the provision of dental care, either through private or publicly-funded dental insurance plans or through direct service plans using salaried personnel. Private dental insurance has grown since 1970 when less than two per cent of Canadians were covered to the point in 1981 where about 50%-60% of the total population in some larger provinces is covered. In addition, some form of provincially-funded denticare operates in eight of Canada's 10 provinces. In most instances these programs insure only children of specified ages, but in others additional groups are covered, depending on age and other factors. In all eight of these provincial plans the care is provided by general practitioners, but in three of the programs the care is also available directly through salaried personnel.

The federal government also employs dental personnel to provide care to the Canadian Armed Forces and a large proportion of the native people (Status Indians and Inuit).

Another feature of dental care provision is the higher emphasis on, and practice of prevention relative to many other professional health groups. This occurs in private practice but is particularly noticeable in a number of provinces which have active, community-based, dental public health programs.

What do all these dental services cost in total? Current accurate figures are not available; however, just over 1.2 billion dollars annually would be a good estimate.*

Although the provision of dental care is highly labour intensive, none of the dental care programs mentioned above could operate without proper dental equipment, instruments and supplied nor, in many instances, without the support of the specialized services of dental laboratories. Therefore, the dental manufacturers, traders and suppliers, and the dental laboratories are integral parts of the dental care system. This dental industry is described in detail later in this report. Besides the need to mention this industry here because of its connection with the dental care system, there is another important reason. Since perhaps as much as 90 per cent of the dental equipment, instruments and supplies used by dental personnel in Canada is imported, questions of import tariffs and their impact on the small domestic dental manufacturers and dental care costs arise naturally. Dental tariffs are the topic of the next section in this introduction.

1.1 Brief History of Dental Tariffs and the Dental Tariffs Issue

Most imported dental instruments and equipment are duty-free. Some dental supply items are dutiable and others are not.* Many of the supply items that are duty-free are classified under tariff item 47600-1 which covers such things as x-ray film and surgical and dental diagnostic articles. However, many of the imported day-to-day consumables such as paper and cotton products, impression materials, rubber dam, waxes, plaster and acrylics, etc. are dutiable, usually according to the type of material they principally contain. In addition, imported materials such as amalgam alloy, composites and pins used in dental reconstructive surgery (i.e., restorations, crowns) that remain in the mouth as part of a dental prosthesis are dutiable.**

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*Dental expenditures for 1979 were (provisionally) estimated to be $1.09 billion, excluding denture therapist and denturist services and most preventive public health services. Source: Medical Economics Section, Information Systems Directorate, Policy Planning and Information Branch, Department of National Health and Welfare. October 1981.

**These comments ignore the changes in some dental tariffs contained in the November 12, 1981 federal budget since the tariffs and issue we are describing concern the rationale behind this study.

On the basis of an appeal the Tariff Board ruled in February 1979 that these latter dental materials (amalgam alloy, composites, pins and screws, etc.) were duty-free in that they qualified under tariff item 47810-1 or 47900-1, along with medical and surgical materials as materials used in reconstructive surgery. Effective November 9, 1979 these materials were specified as duty-free. This lasted until the October 28, 1980 budget -- a period of about eleven and one-half months -- when tariff items 47810-1 and 47900-1 were amended to exclude specifically dental prostheses.

Opposition to this re-imposition of the tariffs was led by the Canadian Dental Association, with the support of provincial dental associations and individual dentists. As found in Appendix 1 of this report, the Brief* prepared by the Association for presentation to the Standing Senate Committee on Banking, Trade and Commerce stressed, among other reasons for its concern, that the re-imposition of the import tariffs on materials used in dental reconstructive surgery increased Canadian dental care costs in the aggregate by perhaps 3 to 5 million dollars annually;** discriminated against dentistry since medical materials for reconstructive surgery are duty-free; and offered protection primarily to one manufacturer of alloy actually employing very few Canadians relative to the patient cost impact.

Because of the debate surrounding this issue and the need for more detail as to the dental care cost impact of dental tariffs (about which there were some strong differences of opinion), officials in the Department of National Health and Welfare identified in August 1981 a team of three dental researchers from the Faculty of Dentistry, University of Toronto to study this matter and report upon it by December 31, 1981. The study was to have the following terms of reference.

1.2 Terms of Reference

1. The primary objectives of this study are to identify the impact that federal protective tariffs imposed on dental materials and products have in terms of:

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*The appended brief of the Canadian Dental Association should be consulted for the specific points of which this is a short summary. A more detailed discussion of certain aspects of the historical background will also be found in the C.D.A. brief.

**The actual figures of 3 to 5 million were contained in the transcript of the discussions during the presentation of the Brief (see J.C.D.A., October 1981).

a) the costs of dental health services in Canada, including the cost of dental health services delivered through private dental practices and public dental care programs, and

b) national and international economic implications, including:

i) the effects in the area of securing Canadian sources of supply of dental materials and products;

ii) the effects on present and future costs of dental materials, product and services;

iii) the effects on international trade agreements;

iv) the effects on the costs of supplies and materials sold in Canada by multi-national corporations;

v) the effects on the balance of trade between Canada and other countries.

2. A secondary objective is to identify the sources of increasing costs of providing dental health services.

It should be noted that the above terms of reference refer to dental tariffs in general, not just those involving reconstructive dental surgery.

Particulary in respect to Term of Reference 1.(b) (national and international economic implications), the study team was given the opportunity to add a health economist, as a consultant. Subsequently, Dr. Pran Manga of the University of Ottawa was identified for this task.

As a postscript to this dental tariff scenario, it should be noted that the federal budget of November 12, 1981 indicated that a number of alterations (decreases) will be introduced in the tariffs applicable to materials involved in dental prostheses and used in dental reconstructive surgery. This listing of changes reached us early in December 1981 and the changes are, as of this date, not law. Therefore, this is presented here for information only; the terms of reference as outlined above largely have been followed relative to the situation as it existed in August 1981, the starting date of this study.

1.3 The Present Report

The organization of this report reflects the assignments given to its three principal authors and economic consultant arising out of the terms of reference. Dr. Lewis leads off by

describing his study approach analysis, and findings relative to private dental practice. In the following chapter Dr. Leake reviews his methodology and the findings from his assessment of dental tariffs and direct service public dental programs. Next Dr. Smith describes the dental industry and dental laboratories just mentioned and the relevant statistics provided by them. This is followed by Dr. Manga's discussion of specific terms of reference from the perspective of a health economist.

The report ends with a summary which draws together many of the important points and conclusions raised in separate chapters by the individual authors.

2. PRIVATE DENTAL PRACTICE

D.W. Lewis

2.0 Purposes of the Private Dental Practice Component of the Study

These concern the study's terms of reference involving: (1) the impact of the import tariffs on the costs of dental health services provided through private dental practice; and (2) identification of the sources of increasing costs of providing dental health services.

2.1 Primary Data Sources

A search of the relevant published Canadian literature revealed little information of help to the achievement of the above two goals. Therefore, dental associations and, subsequently, private dental practitioners were approached.

2.1.1 Provincial Dental Associations

Methods of Approach and Co-operation Received

All provincial dental associations were sent letters describing the nature of the study and our need to receive data about practice expenses and dental supply cost components from provincial dental practice surveys or other special studies they had conducted, and the process of fee setting utilized. Following this the executive directors of six provincial dental associations were visited to further explain these needs and examine what data actually are available. Eight provincial associations agreed to provide selected data on the condition that the individual province would not be identified. Thus, these data must be merged into single aggregate, "national" figures (or ranges), or otherwise be suitably masked. These eight provinces represent each of the geographic regions of Canada (eastern, central, western) and nearly 95 per cent of Canada's 10 763 active, licensed dentists in 1979 (Table 6.1 Canada Health Manpower Inventory, 1980).

The Canadian Dental Association (C.D.A.) was also approached regarding the study and subsequently expressed its support in writing. The Association's submission to Senator Hayden's Committee on the dental tariff issue was provided to us by the C.D.A., along with the published text of the proceedings related to this submission. The C.D.A. has agreed that their submission, as presented by Dr. R. Hicks of Vancouver, be appended to this report (Appendix 1).

Available Data

Each of the co-operating provincial dental associations provided breakdowns of the various annual major categories of practice expense (salaries and wages, laboratory charges, dental supplies, etc.) on a per cent distribution basis and, in some instances, on an actual dollar basis as well. In some provinces these data were available for the five-year period, 1976 to 1980 or longer, and for the others from one to four years. None of the provinces has available special studies involving the decomposition of dental supply expenses into less aggregate sub-components such as anaesthetic, alloy, burs, etc. (This information was therefore obtained at the individual dentist level - see following section.) Information on each co- operating province's fee-setting process was obtained, and the estimated utilization of provincial fee guides by dentists was determined for several provinces.

2.1.2 Private Dental Practitioners

Methods of Approach and Co-operation Received

Previous experience with mail questionnaires to dentists made it clear that a direct, personal approach, rather than a mail survey, was required to get the required details on dental supply expenditures. Thus, personal interviews with dentists were arranged in some instances to discuss the possibility of data collection. In others, this was discussed on the telephone following introductory correspondence. Eventually 12 general dental practices in four provinces (eastern, central, western) were visited for data collection purposes. Twenty-one (20.5) full-time equivalent dentists were employed in these practices. In addition, statistics on silver amalgam alloy consumption were obtained from three dentists in another province and two others provided special study information.

Every dentist approached agreed to co-operate; however, it must be emphasized that these dentists in some instances were known to the author and, in others, were identified as likely candidates by provincial dental association personnel. Although this is a selected rather than a random sample of dentists, they were purposefully chosen to include solo and group practitioners who were known (or thought) to be of varied productivity. Also, they practised in communities of varied population size in, as mentioned earlier, five provinces. A national, random mail questionnaire would almost certainly have resulted in a poor return and many incomplete responses because of the sensitivity of the data and (as we discovered) among other reasons, the amount of work required to retrieve it.

As with the dental associations, the private dentists agreed to provide data if anonymity and confidentially were maintained.

Available Data

None of the dentists visited had conducted special studies to break down their dental supply expenses into less aggregate subcomponents that would permit analysis of the relationship between domestically-produced and imported items, and the cost of the duty for dutiable imported items. Utilizing what was typically available in private practice, a trial run at one practice revealed that the best approach would be to do a survey of the consumable dental supplies and material purchases in a given time period using purchase invoices. This inventory of purchases entailed recording the quantity, class of product, trade name and cost for each consumable item.* The time involved in this search and recording process was considerable so this survey had to be limited to all consumable purchases made in one calendar year (1979 or 1980) for 11 practices and in two years for another.

Because of stockpiling and episodic purchasing, itemized purchase data covering only one year clearly do not represent the average annual consumption of each item. However, to the extent that supply costs are really considered by dentists as one factor in their pricing of services (or by their provincial associations in suggesting fees), it was realized, upon reflection, that the annual tax-recorded supply purchases, not actual usage per item, would be the pricing determinant considered. Also, the limitation of uneven purchasing practices created by having data covering only one year may be partly mitigated when these data are aggregated over all 12 dental practices.

Mean annual amalgam alloy consumption for periods covering the past one to four years was estimated from the records provided by each of the 15 dental practices representing 24 dentists.

No output data describing, for example, the quantity and types of services produced in a given time were available or able to be determined accurately for any of the dental practices visited. Thus supply purchases connot be related to units of service.

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*Hand instruments (including clamps), equipment purchases and repairs, office supplies and other non-dental items found in the dental supplies invoice files were excluded.

2.2 Findings

2.2.1 Impact of Import Tariffs on (Dental) Health Service Costs

The Process of Dental Fee-setting

Discussions with individual dentists and persons knowledgable about fee-setting in the provincial dental associations, and published material on association fee guides revealed some things about the process of dental fee-setting in Canada. This was felt to be important since dental care costs in the private sector represent, in simple terms, the aggregation of the fees collected. Therefore, the process utilized for fee-setting bears an important and direct relationship to dental health service costs. The question of how sensitive the fee-setting process is to the dental practitioner's increasing supply costs, the type which import tariffs might engender, seems particularly relevant.

At the provincial dental association level three general types of fee-setting are evident: the traditional relative value unit (R.V.U.) approach and formula; the modified R.V.U. approach with its more elaborate formula; and the catch-up-to inflation, add-on approach (with ad hoc formulae) of some provinces. Some individual practitioners apparently have their own methods and do not follow the provincial formulae (where available).

Due, perhaps, to increasing third party involvement in the payment for dental care rendered by private dentists, an increasing number of dentists in Canada seem to use their provincial dental association fee guide prices. Figures of 80%, 85% and 90% of dentists using either the current year's provincial fee guide or those of earlier years which have prices, say, 10% or 20% lower, have been suggested. However, upon further investigation of survey data it is clear that although the large majority of dentists use (where available) the published fee guides (old and new), many of these dentists, in fact, take their patients' situations and other factors into account and alter (usually lower) the fees charged. Thus the per cent of dentists who use the fee guide at some time is much higher than the per cent of dental services explicitly charged at the listed fee guide prices all the time. Apparently the fee guide is, indeed, used by many as only a guide.

Whether the guide is used or not the question of the sensitivity of the fees charged to increases in supply costs remains. It appears that both of the fees formulae using the R.V.U. approach are sensitive to practitioner supply costs, although differences in the extent and timing of the sensitivity are claimed. The seemingly more elaborate approach which has inflationary adjustment factors built-in claims to be

able to capture small differences in supply costs more quickly. However, with the traditional R.V.U. approach, increased supply costs tend to be merged with other practice expenses and flow through to increased fees in an apparently more aggregate and slower fashion. Thus the traditional formula is less sensitive to supply cost increases and has a built-in time lag.

The available information does not permit assessment of whether relatively small increases in supply costs such as the marginal increases due to import duties because of inflation directly pass through to patients. In discussion dentists felt that, notwithstanding the annual and, in some instances, more frequent adjustments in the provincial fee guides, their own practice cost monitoring would be insensitive to anything but high and sustained increases in dental supply prices.

Evidence that this occurs (ignoring arguments about the meaning of "sustained") is the addition of surcharges for amalgam restorations in some provincial fee guides and by some dentists individually when the price of silver and alloy rose to exceptional heights in 1980. However, whether the much smaller and opposite change arising from the removal of import tariffs on alloys and other materials used in dental reconstructive surgery for about an 11-month period beginning November 9, 1979 actually resulted in decreased supply costs and lower fees (or lower increases in fees), cannot be determined.* The available data and many confounding factors to be considered and the shortness of the duty-free period preclude analysis.

A final important consideration in relation to fee-setting and understanding of the tariffs issue being examined here is its time-related contextual framework.

The import tariffs in question have existed at least since 1963 except for an 11-month period between November 9, 1979 and October 29, 1980. Thus the cost effect of the tariffs if fee-setting is at all responsive to increased supply costs, has been factored into dental fees and fee formulae for many years. Thus the impact of the tariffs on practice expenses, and consequently patient billings, is not at all new, although

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*The question of <u>decreases</u> in dental fees and supply costs in a period of high inflation and interest rates, and economic uncertainty when increases in everything else are the order of the day is interesting, to say the least. Concerning <u>increases</u> in the costs of dental supplies, many dentists expressed dismay that price changes in alloy and radiographic film (which contains silver) more than kept pace with the increase in the price of silver but not its later decrease.

large increases in the price of silver alloy in 1980 in combination with the ad valorem nature of the duty and the politics surrounding this issue have heightened the awareness (reasonably or unreasonably) of this impact. Recognition of the historical nature of the import duty on amalgam alloy was, however, dulled by the extra-ordinary combination of circumstances in which the duty was re-imposed at a time when silver alloy had reached an exceptionally high and, as it turned out, peak price.

Amalgam Alloy Consumption

In field visits estimates were obtained of the mean annual alloy consumption* in ounces per year of 24 general dental practitioners covering 50 practice years (i.e., about two years per dentist, on average). About 40 ounces of silver alloy were used per dentist per year, on average. The variability of annual consumption is indicated by this broad range: from 10 ounces per year for one dentist to 84 ounces per year for another. About 56 per cent of the silver alloy purchased in the past one to five years by the 15 dental practices surveyed was domestically produced (Johnson & Johnson, Montreal).**

If the other general practitioners in Canada had similar average annual alloy consumption, there would be about 374 000 ounces of silver alloy used per year (based on an estimated 9 350 g.p.'s — 11 000 est. dentists x .85).

The dollar amount of duty represented by the alloy consumption estimates is of interest. Using a current average retail cost estimate of $45 per ounce of alloy, each of the 24 dentists surveyed would annually have used alloy costing $1800, of which $792 would represent the imported share. However, the import duty of 14.4% is applied to the price at the border before markup. If the usual 10%, 30%, 30% pattern of handling, importer and distributor markups is utilized and the duty is applied customarily as the first link in the chain of markups, the border price (excluding federal and provincial sales tax, if any) is $372.41 per dentist per year. The duty on this quantity of imported alloy consumed per year is $53.63, which is just under 3% of the estimated cost of the alloy consumed ($1800).

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*Unlike with the annual supply purchases of the next section, consumption here refers to actual use of alloy in restorations for patients.

**For the period in question this estimate is just slightly above that estimated by the dental industry.

Import Tariff Cost Estimate Simulations

Invoices merely indicate the cost paid by the dentist for particular items, the quantity ordered and (usually) the item's trade name. In order to estimate the cost of the duty of imported dutiable items, the voluminous data arising from the inventory of invoices of consumable supplies was analyzed as follows for each of the 12 practices visited.

(i) Each item was categorized into 42 major classes and its trade name and its total cost recorded (excluding provincial sales tax, if any).

(ii) The total cost of each major class was calculated, these costs were summed to give the grand total consumable supply costs and the top 20 classes were placed in rank order by costs.

(iii) Each of the top 20 classes was divided by trade name into sub-classes of domestic and imported items.

(iv) The imported items of each class were further divided into non-dutiable and dutiable items, and the costs of the dutiable items aggregated for each different tariff classification.

(v) The original fair market price at the border for each sub-class of imported, dutiable items was estimated assuming the appropriate per cent tariff for the group of items in question and the 10%/30%/30%/ mark-up chain described previously. ("Reconstructive surgery" items in 1980 were treated as duty-free.)*

(vi) The appropriate duty was applied to the fair market price to give the estimated "duty cost" of each subclass of items in the top 20.

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*This assumes that the price of these goods was lowered when the duty was removed. As pointed out elsewhere in this report, this assumption is not necessarily correct. The effect on the calculations is, however, small.

(vii) The total cost attributable to the duty of all 20 sub-classes was determined by summation and this total adjusted upwards proportional to the ratio of "top 20 costs/grand total supply costs" - which usually equalled about 85% to 90%.

By this method an array of the cost of the duties charged (by government) for the top 20 cost items and total duty cost in each practice was determined, assuming the 10%/30%/30% markup chain. using this basic array, two sub-sets of duty cost were identified: one covering items classified as being involved in reconstructive surgery and another covering only those items not believed to be manufactured at all in Canada (or possibly having very limited manufacture) such as rubber dam, composites, etc. The sums of the total duty costs for the basic array and above two sub-sets for each practice were then multiplied by appropriate factors to give further estimates of duty costs under several new conditions such as different markup schemes from 10%/30%/30%, and when the extra cost due to the markup chain's application to the duty alone is considered along with that directly ear-marked for government.

A summary of some of the findings from the inventory of invoices is presented in Table 2.1 for the 12 practices surveyed. Over all 13 practice years 56.7% of the consumable supplies were imported, with a low of 32% in one practice and a high of 78% in another. In those practices having purchases of dental alloy in the survey year, the six practices purchasing only domestic alloy indicated 47.9% of their supplies, on average, were imported, whereas in the five practices purchasing imported alloy the average percentage was 72.4%.

The estimated annual cost of the import tariff collected by government was $4,005 over all 13 practices (years); this is 2.8% of the total consumable supply costs. This per cent ranges between 2.0% and 5.0% in the various practices. The average cost of the tariff alone is estimated to be $178 per dentist per year ($4,005/22.5). Since equipment and instruments are generally duty-free the duty costs estimated here (which are not limited to items ivolved in "reconstructive surgery") represent very closely the governmental duty costs inherent in the expenses of the practices surveyed.

Table 2.1 also indicates the total cost of alloy purchased in each practice in 1979 or 1980 and the cost of imported alloy purchases, if any. It can be seen that just 31.2% of alloy costs were due to imported alloys in 1979 or 1980. This is lower than the 56% importation of alloy reported previously for these same practices over a longer time span and when the unit of measurement was ounces, not dollars.

TABLE 2.1

SUMMARY OF INVOICE INVENTORIES OF TWELVE DENTAL PRACTICES -- 1979 OR 1980*

Practice No.*	No. Dentist Years	Total** Supply Expenditures	Imported*** Supply Expenditures	Per cent of Imported Supplies	Estimated Import Duty	Per cent Tariff Cost is of Total Supplies	Total Cost of Alloy Purchases	Cost of Import of Alloy Purchases
		$	$	%	$	%	$	$
1	1	7,999	5,462	68.3	402.23	5.0	3,206	3,206
2	2	12,899	6,748	52.3	262.10	2.0	1,629	0
3	1	4,120	2,442	59.3	107.46	2.6	0	0
4	1	3,788	1,208	31.9	79.22	2.1	1,800	0
5	1.5	6,263	5,269	84.1	215.33	3.4	820	820
6	3	9,843	6,750	68.6	382.98	3.9	943	943
7	1	2,559	1,024	40.0	50.56	2.0	777	0
8	1	18,428	11,621	63.1	586.61	3.2	7,568	4,380
9	2	9,549	5,377	56.3	214.12	2.2	1,334	0
10	3	30,876	14,372	46.5	624.70	2.0	10,000	0
11	3	16,794	6,380	38.0	379.19	2.3	5,800	0
12	1	7,814	6,094	78.0	345.38	4.4	1,781	1,781
13	2	10,941	7,677	70.2	355.58	3.2	0	0
Totals	22.5	141,873	80,424	(56.7)	4005.46	(2.82)	35,698	11,130
(Means per dentist-year)		(6,305)	(3,574)		(178.02)		(1,586)	(494) (31.2%)

*One practice provided inventories for two years; just 12 practices were surveyed.

**These supply expenditures exclude small instrument and equipment purchases, repairs and office supplies.

***These imported supply expenditures include dutiable and duty-free goods.

The preceding calculation of the duty paid to government on dutiable imported dental supplies of $178 per dentist per year is based on the premise of a 10%/30%/30% markup chain by handling, importer and distributor. Other markup combinations may exist. Since the duty is applied to the fair market price of goods at the border before markup, an additional component of cost attributable to the markup on the government duty by the importer and distributor can be identified as part of the total cost of imported dutiable goods.* Simulations of the duty cost inherent in such goods according to various markup patterns and the two types of duty cost are found in Table 2.2.

TABLE 2.2

SIMULATIONS OF THE ANNUAL COST PER DENTIST OF THE DUTY ON IMPORTED CONSUMABLE SUPPLIES BY VARYING PRICE MARKUPS AND TYPE OF DUTY COST

	Handling/Importer/Distributor Markup				
Duty Cost Type	'Basic' 10/30/30	'Lower' 10/25/25	10/30/35 10/35/30	10/35/35	'Higher' 10/40/40
Import Duty Only	$178*	$193	$171	$165	$153
Import Duty plus Industry Mark-ups on Import Duty	$331	-	-	-	-

*The import duties on this line of the table vary indirectly with the size of the markups since, for example, with markups higher than the 10/30/30 'basic' ones the fair market prices on which duty is based (and thus duty cost) would be lower given that the selling prices paid by the dentist are known and thus fixed.

The dollar amount of the governmental import duty varies directly with the landed fair market cost and thus indirectly with the markup utilized (see footnote to Table 2.2). It should be noted that the actual markups employed are not known to us, except 10%/30%/30% are the most likely ones utilized.

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*It may be argued that if such goods became duty-free the savings on this markup on duty would not be passed on to the buyer but merely cause increased markups to be applied in order to maintain acceptable profit margins.

In the range of markups offered in the table the cost of the import duty only is between $153 and $193 per dentist per year or from 2.4% to 3.1% of total consumable supply costs per dentist. If the cost effect of markups on the duty are added to the specific import duty charges, the cost is $331 based on the 10%/30%/30% markup chain, which represents 5.2% of total supply costs per dentist.

So far, only the duty costs of all imported dutiable consumable dental supplies have been considered. The contribution to total duty costs of certain sub-sets of expense components and of individual components will now be given.* Because of the debate described earlier concerning the re-imposition of tariffs on imported supplies defined as being involved in "reconstructive surgery", their duty cost under a 10%/30%/30% markup chain was estimated. This cost is $99.67 per dentist per year or $185.29 per dentist per year if the markup effect is included ($99.67 represents just over one-half of the "all items" duty costs). These duty costs are 1.6% and 2.9%, respectively, of total supply costs. Because of the observation that some imported and domestically produced dental items of apparently similar quality are similarly priced (amalgam alloy is an example), the duty cost of a special sub-set of consumable supply items not (or very minimally) manufactured in Canada was determined.** This amounted to $58.18 in tariffs per dentist or $108.16 including the industry's duty markup effect. Estimates and rankings of the individual components of supply expenses as to duty cost follow.

Table 2.3 shows the distribution of the yearly purchases of the top 23 supply expense components in the 13 practice years surveyed.*** Alloy represents both the largest total and governmental duty expenditures. Other expenses ranking high in

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*The November 12, 1981 federal budget in which significant changes were made in the import tariffs applicable to many dental items emphasizes the mere historical significance of many of these calculations.

**Such items are: rubber dam; pins and screws; gutta percha and silver points; composites; plus loose artifical teeth which are duty-free, however.

***These stastistics are based only on the highest 20 expense component expenditures, so some practices with very low expenditures of the type listed do not have these expenditures listed. However, these exclusions along with 19 of the 42 expense categories surveyed represent a loss of only 13% in supply expenditures since the tabled expenses represent 87% of total supply expenses.

both total and duty costs are, in descending order: com-posites, impression materials; pins and screws; tooth brushes; and cavity liners and cements. Other expenses rank high in total cost but have no duty cost either because these items are imported but duty-free (e.g. burs and drills, loose artificial teeth, needles) or are (usually) not imported (e.g. x-ray film, anaesthetic).

In view of the fact that the extensive discussions surrounding the re-imposition of the import tariffs largely referred to the duty on alloy, it is interesting to note that the duty attributable to this product ($845 for 22.5 dentists) is just under one-quarter of the total duty cost of the 23 expense categories in these dental practices ($3532 in Table 2.3). Composites, impression materials and pins and screws each had duty costs about one-half as high as imported amalgam alloy.

TABLE 2.3

DISTRIBUTION OF EXPENSE COMPONENT, IMPORT AND TARIFF COSTS IN 13 DENTAL PRACTICE YEARS*

Expense Category and Rank	Total Cost	Import Cost	Import Duty (rank)	No. of Practices With Either No Annual Expenditure in Category or None in Top 20
1. Silver Alloy	$ 35,658	$ 11,130	$ 844.71 (1)	2
2. Anaesthetic	10,276	28	3.52 (16)	2
3. X-ray Film	9,512	0	0	1
4. Burs, Drills	9,060	7,392	0	0
5. Composites	7,093	7,093	531.76 (2)	2
6. Paper Products	6,819	2,042	146.13 (9)	0
7. Impression Materials	6,742	6,540	418.73 (3)	0
8 Pins, Screws	4,450	4,450	362.62 (4)	1
9. Teeth (artificial, loose)	3,915	3,915	0	10
10. Cavity Liners, Cements	3,919	3,903	203.92 (6)	2
11. Tooth Brushes	3,600	3,001	243.92 (5)	2
12. Cotton Products	3,323	1,776	172.26 (8)	1
13. Cleaners, Sterilizing Solution	2,939	1,813	77.66 (12)	1
14. Needles	2,551	1,783	0	7
15. Rubber Dam, Gloves	2,312	2,298	174.58 (7)	5
16. Preventive Pastes, Solutions	2,196	1,683	114.72 (10)	2
17. X-ray Chemicals	1,948	1,042	0	2
18. Trays (impression, preventive)	1,879	1,763	0	1
19. Crown Forms	1,539	1,516	0	6
20. Points (gutta percha, paper, silver)	1,185	1,178	97.79 (11)	7
21. Floss	1,101	1,101	53.84 (14)	6
22. Acrylic (for liners, trays)	835	825	57.20 (13)	9
23. Prophy Cups, Brushes	471	391	28.61 (15)	8
	$123,323	$66,663 (54.1%)	$3,531.97	

*22.5 dentists covered these 13 practice years.

2.2.2 Sources of Increasing Costs of Providing Dental Health Services

The data to support an in-depth analysis to answer the question inferred by the above title in regard to private dental practice in Canada are not available. One major consideration would be the assessment of each of the various (input) cost components per unit of (output) service rendered over time. However, no reliable output data for private practice to match the input data obtained from provincial dental associations or private practice exist. Moreover, the input data available (provided) from provincial dental association surveys do not permit the analysis of practice expense cost component changes on a per unit basis in a given time period, for example, increases per year in rent per square foot or of a weighted basket of dental supplies.* Increasing staff salaries are often mentioned as a major expense concern. However, the available time series data on this component of practice expense are divorced from the (changing?) mix and number of auxiliaries on the one hand and potentially improved quality and output characteristics of the practice on the other.

This section, therefore, will present a limited descriptive analysis, using the provided data, of the general economic characteristics and salary experience of private dental practice in Canada. The analysis is further constrained by confidentiality requirements and the agreement not to reveal dollar expense and income figures in the few cases where these were provided.

Based on the time series survey information provided by a number of provincial dental associations and other published information, two trends in the economic characteristics of contemporary private dental practice are evident:

(i) annual practice expenses occupy an increasing share of gross annual (dental) income -- from 47% of gross income in 1968 to 53% in the 1974-76 period to 58% in the 1978-80 period;

(ii) the per cent growth in recent years of practice expenses exceeds the per cent growth of gross income which, in turn, exceeds that of net income (see Table 2.4)

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*Actually data of this type for some dental expense components (not "weighted" supplies though) was kindly provided by one province; however, its use would strain concerns about both confidentiality and national representativeness.

TABLE 2.4

PER CENT INCREASE IN GROSS REVENUES, EXPENSES AND NET INCOME -- CANADA 1975-1978 AND 1974-1979

Period		Gross Revenues	Practice Expenses	Net Income
1975-1978	Weighted Mean Per cent Increase*-	29.2%	38.8%	18.3%
	Range (%) -	(22.7-48.0)	(27.7-79.8)	(15.4-28.1)
1974-1979	Range of % Increase	(60-90)	(71-115)	(48-64)

*Weighting based on the dentist population size of five provinces having 72% of Canada's dentists and these provinces' dental association survey data.

Another way of examining the economic experience of private dental practice in Canada is to observe the shifts in relative per cent of the major components of practice expense over time, keeping in mind, however, the relative growth of expenses just mentioned and, as well, the previous discussion about the crude (non-unit) nature of the available expense component data. Table 2.5 presents Canadian estimates for 1968, 1974, 1977 and 1980 for the four provinces that provided a suitable time series. Given the slightly different nature of the items classifed under each category by different surveys among and, indeed, within provinces over time, the fluctuation in per cents are not remarkable. The salaries and benefits paid to staff as a proportion of total expenses do rise from about 30% in the initial part to about 36% in the latter part of the period. (However, increased numbers and a different mix of staff may be responsible and this will be examined shortly.)

Dental supplies and materials are decreasing as a per cent of total expenses, from about 15% in the initial part to 11%-12% in the latter part of the period. Although "administration and other" costs have remained stable as a per cent of total expenses over the indicated time period, it is interesting to note the apparent increase* in two of these category's subcomponents -- "bank charges and interest" and "management fees".

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*It should be noted that "management fees" were probably not itemized for response in earlier practice surveys; however, there probably was little need to as very few practices used management companies. In some provinces 40% to 50% of practices now do.

TABLE 2.5

ESTIMATED PER CENT DISTRIBUTION OF ANNUAL PRIVATE DENTAL PRACTICE EXPENSES — CANADA 1968, 1974, 1977, 1980

	Survey Year			
	1968 %	1974 %	1977 %	1980 %
Salaries and Benefits	29.3	32.1*	36.2	36.5
Laboratory Charges	20.6	16.9	17.6	18.4
Dental Supplies	14.8	15.0	12.2	11.3
Equipment Costs (depreciation, repairs, rentals)	6.9	10.3	9.3	8.4
Office Rent, Utilities & Janitorial Costs	12.7	8.1	8.5	8.9
Professional Development, Conferences, Cont. Education	1.7	2.3	1.4	1.3
Administration & Other	14.0	15.3	14.8	15.2
- including (management fees)	(-)	(-)	(-)	(6.0)
and (bank charges, interest)	(1.7)	(?)	(1.3)	(3.8)
	100.0	100.0	100.0	100.0

*Each per cent from 1974 on has been weighted by the number of dentists in the four provinces providing survey data that year; these four provinces have 70% of Canada's dentists. The 1968 data are from the 1968 Survey of Dental Practice by the Canadian Dental Association.

The increasing proportion of total practice expenses occupied by the salaries and benefits component over time may be due to wage increments well above inflation or increased numbers of staff or different (and more expensive) mixes of staff types, or combinations of these factors.** Since weighted average staff salaries and average total salary and benefit expenditures for the same dental practices were

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**The possibility that this is a statistical artifact due to a shrinking with time in dollar cost of some or all other components can be dismissed since the survey data available with dollar costs show no such component shrinkages.

available from two provinces for the period 1974 to 1980, comparisons of the annual growth of each of these statistics may give some insights into the question.* Table 2.6 gives the essential data, summarized to preserve confidentiality.

TABLE 2.6

PER CENT INCREASES IN MEAN SALARIES AND TOTAL SALARY EXPENSES

	Annual Per cent Increase for Years:					
Province	1974-75	1975-76	1976-77	1977-78	1978-79	1979-80
'A' Weighted Mean Salaries**	14.3	13.3	13.4	9.1	14.6	12.8
Mean Total Salary and Benefit Expenses	24.4	17.2	28.4	10.4	16.8	22.0
'B' Weighted Mean Salaries**	15.3	11.7	10.6	10.8	14.0	11.2
Mean Total Salary and Benefit Expenses	25.7	12.6	6.1	9.7	20.9	-

**In one of these provinces one type of personnel is excluded from the weighted mean calculation; however, except for one yearly interval, the per cent increases for this type were very similar.

Large differences between each appropriate pair of per cent increases would be suggestive of increased numbers of staff or possibly a "richer" mix of staff (or both) being primary contributors to the growth of salary expenditures rather than exceptional salary demands (above the inflation displayed by other practice cost components) being responsible.*** In province 'A' four of the six year-to-year comparisons suggest greater numbers

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*The number and type of staff per practice to give a direct approach to answering the question(s) were not provided to us.

***The "mix" part of the explanation should be taken care of by the weighting process employed for mean salaries; however, the actual weighting process used was unclear.

of staff to be responsible, whereas in province 'B' this is true for two of the five comparisons. In four of the five exceptions to this pattern there is a close correspondence between mean salary increases and total salary expenditures. Thus, while an analysis of this sort is fraught with difficulties, it appears that much of the talked-about growth in practice salary expenses is attributable to hiring decisions by the dentist-employer rather than inflation. In fairness, the weighted mean salary increases appear to be just above inflation in six of 12 instances; however, and this was the main point of this particular exercise, none* of these approaches the 17% to 28% growth experience of total salary and benefit expenditures.

One final approach to the assessment of changes in the costs of providing dental care in the private sector arises from the concern that the examination of the year-to-year per cent increase in the cost of the individual components of practice expense ignores the importance of that cost to total costs (such as total expenses or gross billings). This concern led to exploration with an Index of Expense which is, simply, a weighted measure of the per cent annual change (increase) in each expense component, with the weights being that component's size relative to gross income. Table 2.7 presents data utilizing this exploratory index.

Whatever deficiencies the index has** it does, at least, sort some things out in priority order. Thus, the generally mid-ranked expense component "professional development" in terms of its yearly cost increases assumes seventh and last ranking using the expense index. This, of course, occurs because this expense component is very small relative to gross billings. Salaries and benefits which have comparatively moderate rankings in terms of per cent increases each year assume top or close-to-top ranking using the index. Similarly, according to the index, the impact of laboratory charges increases in the last two time periods when these charges are adjusted relative to their importance in overall billings (or total expenses). Dental supplies and office rent, utilities and maintenance seem to have a consistently moderate to low share of expenses over the three time periods according to the index.

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*Actually one pair of the "high" per cents is quite close -- 14.6% vs. 16.8%.

**There are many deficiencies, for example, no investigation of its distributional properties and requisite transformations, if any, has been done. Also the deficiencies of the available expense component data have previously been described in this section of the report.

TABLE 2.7

RANK ORDER OF EXPENSE COMPONENT COST INCREASES AND AN "EXPENSE INDEX" -- 1973-74, 1976-77, 1979-80

	1973-1974 Rank Order		1976-1977 Rank Order		1979-1980 Rank Order	
	% Incr. Cost	Expense Index	% Incr. Cost	Expense Index	% Incr. Cost	Expense Index
Salaries & Benefits	3 (16.4)*	2 (936)**	2 (28.4)*	1 (1819)**	5 (22.0)*	1 (1280)**
Rent, Utilities & Maintenance	6 (12.3)	6 (261)	5 (14.5)	5 (271)	7 (8.1)	6 (125)
Dental Supplies	7 (9.5)	5 (262)	7 (12.1)	4 (285)	3 (24.0)	5 (522)
Laboratory Charges	2 (19.6)	3 (710)	4 (19.4)	2 (694)	6 (20.3)	2 (679)
Equipment Costs (depreciation, repairs, rentals)	5 (14.8)	4 (286)	1 (33.5)	3 (626)	2 (33.4)	4 (550)
Administration & Other	1 (43.1)	1 (955)	6 (14.4)	6 (233)	1 (34.8)	3 (585)
Professional Development	4 (15.8)	7 (63)	3 (21.2)	7 (61)	4 (22.2)	7 (58)

*These (figures) in this column represent increases in the cost of the indicated component and time period.

**Expenses Index = (% increase in component cost) x (component cost as % of gross in 'later' year, e.g. '74, '77, '80)-is listed, for information, below each ranking in brackets.

2.3 Discussion and Conclusions — Private Dental Practice

Assessment of the impact of import dental tariffs on the cost of dental services in the private sector is complicated by uncertainties and is frustrated by the lack of excellent data. One uncertainty is the veracity of a fundamental assumption that domestic goods would be lower in price than imported dutiable goods of similar quality. Otherwise, it is difficult to conclude how the tariffs on such goods could directly affect (increase) dental care costs.* Well, except for Canadian-made dental burs (which curiously do not enjoy tariff protection), the prices of some other domestic goods such as dental alloy, for example, do not appear to be cheaper. Since alloy accounts for about 25% of dental import duties this is not an unimportant exception. Another uncertainty is dental fees.

The dental fee-setting process apparently is somewhat sensitive to high sustained increases in dental supply costs but its responsiveness to small supply costs is less certain. The import duty costs as found in this study can be fairly characterized as very small relative to other dental practice economic parameters. This small cost and recognition that the duty costs of dental supplies already have been factored into fees and fee formulae for many years, since import duties are not new, further complicates the isolation and measurement of the impact of import duties on dental care costs.

Amalgam alloy purchases and restorative work are major economic aspects of many dental practices. The consumption of dental alloy by the Canadian private dental practitioners surveyed for this study was approximately 40 ounces per year; just over one-half of this alloy was imported. The current cost of the duty collected by government on the imported alloy used by these dentists would be about $54 per dentist per year. This is three per cent of the estimated total cost of the alloy consumed annually.

The cost impact of import tariffs on alloys and many other dental supplies was estimated on the assumption that, if the duties did not exist, (1) the price of imported dutiable supplies would be reduced by the cost of the tariff paid to government and (2) the price might further be lowered by the cost of the markup traditionally applied to the tariff cost in the pricing chain. Based on the inventory of practice invoices

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*Of course there may be other indirect effects of the import tariffs of benefit to Canadians such as job creation here but the basic question of the size of dental bills is the concern at this time.

this first reduction averaged to about $178 per dentist per year (range $153 to $193) and with the addition of the second reduction the saving would be about $331 per year.*

If these estimates could be generalized** to other private general practitioners in Canada (ca. 11 000 x .85 = 9350) the first reduction would come to from 1.4 to 1.8 million dollars annually and with the addition of the second reduction, to about 3.1 million dollars annually.*** However, the effect on the major economic parameters of the individual dentists' practices are much less dramatic since the figures of $178 and $331 per year translate into 2.8% and 5.2%, respectively, of total annual supply expenses or 0.18% of gross income and 0.32% of expenses for the first figure and 0.34% of gross income and 0.59% of expenses for the second figure. The economic impact of the tariffs is not large.

Data limitations more severely constrained the extent of the analysis of the sources of increasing costs in the provision of dental care in the private sector. It is reported that expenses are taking an increasingly greater proportion of gross income with time (about 58% at present) and that practice expenses are increasing rapidly (about 38% including inflation between 1975 and 1978). As proportions of total expenses, salaries and benefits have increased slowly with time to about 35% at present, while dental supply expenses have slowly decreased to about 11% at present.

It is perhaps noteworthy that management fees now occupy a rather high proportion of total practice expenses (6% in many provinces) and that interest fees and bank charges (about 3.8%)

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*The doubtful reality of the application of the second reduction has been discussed previously.

**The lack of randomness in our sample of dentists must be mentioned again here.

***The higher of these two figures, 3 million dollars, is the lower figure of the range of $3-5 million, found in the transcript of the presentation of the C.D.A. to the Senate Standing Committee on Banking, Trade and Commerce (J.C.D.A., Oct. 1981, p. 561); however, other figures quoted in the newspaper have been higher. For example, a Canadian Press report dated September 12, 1981 suggests the duties on amalgam alone add perhaps $4 million to $5 million a year to dental bills. According to our calculations this latter range (for amalgams) is from $0.35 to $0.51 million for the governmental duty or from $0.65 to $0.94 million including the duty markup effect.

now appear to be growing as a practice expense. The marginal productivity gains, if any, attributable to these new (or increasing) practice expenses would be of interest in the proper analysis of changing costs in the provision of dental care.

The increasing salary part of expenses appears to be due as much to the greater employment of personnel (and perhaps of new types of more highly trained personnel) as to numerous wage settlements well above inflation. Nevertheless, the total impact of the salary component on practice expenses cannot be denied. Weighted comparisons of the per cent increase of major practice expense components in three time periods supported the prominent role of salaries in practice expenses. Also, the time-related low to moderate role of office rent, utilities and maintenance and of dental supplies was observed. Although the pattern is somewhat irregular, administrative (and 'other') costs were of second rank after salaries in their impact on dental expense costs in two of the three time periods reviewed.

3. STUDY OF PUBLIC DIRECT SERVICE DENTAL PROGRAMS

J.L. Leake

3.0 Methodology

The managers of four direct service, publicly financed, dental programs were approached to be included in the study. All were asked to provide cost and service data as well as data on the major dental supply items purchased for three years. The years were selected to correspond as closely as possible to the period of nearly one year - November 9, 1979 to October 28, 1980 - when tariffs on items used in reconstructive dental surgery were removed; plus the year before - November 1978 to October 1979 - and the year after - November 1980 to October 1981 - when tariffs were again being levied.

Each of the four program managers were visited during phase one of the study to assess the quality of the data available and the form in which the data, if available, were recorded. An estimate was made at that visit of whether a research assistant could be trained to retrieve the data, and the amount of time necessary to both train the person and for that person to record and tabulate the data in a format that could be used to compare the experiences of all programs.

The managers of the Saskatchewan Health Dental Plan (SHDP), the Manitoba Children's Dental Plan, staff component only (MCDP), the Dental Services, Medical Services Branch, Manitoba Region, Department of National Health and Welfare (MR, DNH&W) and the Dental Services for the Canadian Forces, Department of National Defence, all agreed to provide the data requested.

3.0.1 Phase One

At the phase one visit it became apparent that the data from the Canadian Forces would require efforts to obtain which were beyond the resources of the study. It was also decided that the uniqueness of the Canadian Forces would likely eliminate any comparability to other programs. Thus, this program was not included in the study.

Manitoba Region, Department of National Health and Welfare (MR, DNH&W) was able to provide data on services and costs in a format that could be adjusted to the study years. The record of the major dental supply items was not readily available and this had to be omitted. Detailed monthly cost statements and service data were provided to the study and were retabulated by study personnel.

Saskatchewan Health Dental Plan (SHDP) provides detailed service and cost data in published annual reports. The computer-stored service data are examined carefully for the purpose of the annual reports and errors are corrected. This is a process requiring knowledge of both the program and access to specific personnel. To adjust the service data to the selected study years therefore appeared to be beyond the resources of the study.

However, since the published data are only out of phase by two months, i.e., are on a September-August year, the decision was made to include SHDP data as published for two study years, 1978-79, 1979-80 (1980-81 is not yet available). The format of the cost data was adjusted so that the costs of dental supplied and capital fit the format of the data available from Manitoba.

Further, the managers of the SHDP agreed to provide the study with a list of expenditures, by item, on dental supplies purchased for the two program years. Note that the supplies as purchased do not relate necessarily to the supplies as consumed but no record is readily available of the items as shipped to either the regions or the clinical teams.

The staff component of the Manitoba Children's Dental Program (MCDP) provided data on the costs of providing services and the detail of those services. These were tabulated by study personnel to correspond to the three years in question. Further, a detailed examination was completed of the system which is used to record the shipment and costs of dental supplies and repair parts from the program's central warehouse to the regional warehouse and field staff. From this a detailed list of major supply items with prices and quantities, as shipped, was developed for the three study years.

The following table summarizes the data obtained from the three sources during phase one of the study and shows that the most complete data were obtained on the Manitoba Children's Dental Program.

TABLE 3.1

SUMMARY OF DATA OBTAINED FOR STUDY ON DENTAL TARIFFS FROM THREE PUBLIC PROGRAMS

Data	Program SHDP	MCDP	MR, DNH&W
Costs of inputs for number of years ending in:	2 years - August	3 years - November	3 years - November
Costs of major dental supply items	2 years - purchased	3 years -as shipped to field	not readily available
Description of services provided for number of years ending in:	2 years - August	3 years - November	3 years - November

3.0.2 Phase Two

During phase two of the study the clinical service data were further adjusted to a system of relative time units (R.T.U.'s) derived from the January 1981 fee guide of the Manitoba Dental Association. This system provides a means whereby different clinical services can be expressed as a common surrogate good, i.e., a time unit of ¼ hours. The system, however, does not allow for the conversion of community or school-based group preventive services such as a classroom fluoride rinse. Since this serves to understate service output, any over-statement of unit costs is avoided by presenting the clinical service data as per cent distributions by year.

Similarly, cost data are first treated as a percentage distribution by major cost category. These cost and output data are integrated in Table 3.4 to show the relative impact on annual changes in cost per time unit by these major categories of cost. Tables 3.5 and 3.6 show purchases and usage by price and quantity of dental supply items by two of the programs.

In the discussion, the impact of protective tariffs is examined, based on the list supplied in Tables 3.5 and 3.6.

3.1 Findings

3.1.1 General

The SHDP is the largest of the three public programs examined, having provided over 820 000 clinical services in

each of the two years. The staff component of the MCDP is smaller, averaging over 105 000 services over the three years. Manitoba Region, DNH&W is the smallest program studied, providing as an average during the three years over 31 500 clinical services.

3.1.2 Clinical Service Output

Table 3.2 outlines the percentage of distribution of services, as measured by relative time units, by years, for each program and as an average of the three examined. The data on clinical services exhibit some variability when comparing the three programs in any one year. Part of that is explained by the fact that the two provincial programs serve only children, whereas the federal program (MR, DNH&W) serves both adults and children. Thus, the federal program has, in 1980-81, 12.2% of its output in the form of extractions - and 6.0% in the form of denture services.

Part of the inter-program variability might also be explained by the "professional philosophy" of the programs as shown by the much lower emphasis on radiographs in the MR, DNH&W program and the high level of preventive services in the SHDP.

However, intra-program variability is also observed over the period of study within the two smaller (MCDP and MR, DNH&W) programs. As an example, annual denture service relative time units fall from 23.2% to 9.1% and 6.0% of the total output in MR, DNH&W. In the MCDP, restorative services are 44.6% of the output in the first year, fall to 34.7% in the second and increase to 42.5% in the third year.

Nevertheless, restorative dental services, the cost of which prompted this study, were found to be a significant proportion of the output of the public dental programs. Over the three years they made up 36.3% of the total service output measured in this study. The restorative time units varied from a low of 30.0% to a high (for the two smaller programs only) in the last year of 40.9%. As a three-year total, restorative services follow in rank order preventive services, accounted for 39.5% of output, but surpassed examination services and radiographic services combined, which represented 20.9% of the total output of the three programs.

3.1.3 Cost of Providing Care

In examining the costs of the three public programs it is again obvious that the Saskatchewan Health Dental Plan (SHDP) is the largest, costing in excess of 8.2 million dollars in 1979-80. In that same year the cost of the Manitoba Children's

TABLE 3.2

PER CENT DISTRIBUTION OF CLINICAL DENTAL SERVICE OUTPUTS BY THE THREE CANADIAN PUBLIC PROGRAMS OVER 3 YEARS (1978-81)

Per cent Distribution of Dental Service Outputs - In Relative Time Units

Services	(2) Year:	1978-79				1979-80				1980-81		
	(3) Program :	SHDP	MCDP	MR, DNH&W	Avg.	SHDP	MCDP	MR, DNH&W	Avg.	MCDP	MR, DNH&W	Avg.
Examinations		16.2	20.5	19.1	16.9	17.1	25.1	15.8	17.8	21.0	17.6	19.9
Radiographs		3.6	5.9	0.4	3.8	2.6	7.3	0.3	3.0	5.5	0.3	3.8
Preventive		42.5	23.5	11.6	38.6	45.5	29.0	10.6	42.2	27.1	26.6	26.9
Restorative		30.7	44.6	33.4	32.6	28.3	34.7	49.1	30.0	42.5	37.4	40.9
- Amalgams		24.8	39.2	29.6	26.9	22.8	31.5	44.4	24.7	38.9	33.3	37.1
- Anteriors		1.6	0.2	3.8	1.5	1.6	0.3	5.7	1.7	0.4	4.1	1.6
- Stainless Crowns		4.3	5.2	-	4.2	3.9	2.9	-	3.6	3.2	-	2.2
Pulp Therapy		2.5	2.6	-	2.4	2.0	1.4	-	1.9	1.3	-	0.9
Extraction		2.9	3.0	12.2	3.4	2.9	2.3	14.2	3.4	2.4	12.2	5.5
Denture		0.0	0.0	23.2	1.1	0.0	0.0	9.1	0.4	0.0	6.0	1.9
Orthodontics		1.4	-	0.0	1.1	1.5	-	0.0	1.3	-	0.0	-
Total Per cent		100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Relative Time Unit					986 186				944 471			140 727

Note: 0.0 = no output
- = output less than 0.05%

Notes to Table 3.2

(1) Percentages may not add to 100 because of rounding.

(2) For SHDP, Year is September 1 to August 31; for MCDP and MR, DHN&W, Year has been adjusted to be November 1 to October 31, except for MCDP 1980-81, which has only 11 months, November 1 to September 30.

(3) Programs: SHDP - Saskatchewan Health Dental Plan
MCDP - Manitoba Children's Dental Program, staff component only.
MR, DHN&W - Manitoba Region, Department of National Health and Welfare.

Sources

1. Saskatchewan Health Dental Plan Annual Reports 1978-79 and 1979-80. Government of Saskatchewan, Regina.

2. Data provided by Dental Services, Department of Health, Province of Manitoba, 1981.

3. Manitoba Region, Medical Services Branch, Department of National Health and Welfare. Cost Centre Statements for Dental Services by Month from November 1978 to October 1981. Department of National Health and Welfare, Manitoba Region, Winnipeg, 1981.

TABLE 3.3

PER CENT DISTRIBUTION OF MAJOR COSTS OF PROVIDING DENTAL SERVICES IN THE THREE CANADIAN PUBLIC PROGRAMS OVER 3 YEARS (1978-1981)

Per cent[1] Distribution of Costs

Costs	Year:[2] / Program:[3]	1978-79 SHDP	1978-79 MCDP	1978-79 MR, DNH&W	1978-79 Avg.	1979-80 SHDP	1979-80 MCDP	1979-80 MR, DNH&W	1979-80 Avg.	1980-81 MCDP	1980-81 MR, DNH&W	1980-81 Avg.
Salaries		78.8	70.5	56.6	76.7	79.2	69.4	64.9	77.0	68.6	70.0	68.9
Capital		2.8	10.3	9.2	4.3	2.9	10.1	6.4	4.2	10.2	6.2	9.4
Travel & Accommodation		8.2	11.0	19.6	8.9	7.4	11.8	15.2	8.4	11.1	7.7	10.4
Postage, Telephone Office Exp., Freight		2.0	1.2	3.8	1.9	2.1	1.4	0.9	1.9	1.3	1.6	1.4
Dental Supplies[4]		4.4	3.0	5.9	4.1	4.4	3.0	8.0	4.3	3.6	11.4	5.2
Preventive Supplies[5]		-	1.7	-	0.3	-	2.1	-	0.4	1.7	-	1.4
Repairs, Parts & Service[6]		0.2	0.2	2.6	0.3	0.3	0.2	1.9	0.3	0.2	1.8	0.5
Laboratory Charges		0.6	-	-	0.4	0.5	-	-	0.5	-	-	-
Other Costs		3.2	2.4	2.1	3.0	3.2	2.1	2.7	3.0	3.2	1.2	2.7
Total Percent		100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Total Dollars					9 587 774				10 452 904			2 194 182

Note: - = expenditures not recorded by that heading.

Notes to Table 3.3

(1) Percentages may not add to 100 because of rounding.

(2) For SHDP, Year is September 1 to August 31; for MCDP and MR, DNH&W, Year has been adjusted to be November 1 to October 31, except for MCDP 1980-81, which has only 11 months, November 1 to September 30.

(3) Programs: SHDP - Saskatchewan Health Dental Plan
MCDP - Manitoba Chidlren's Dental Program, staff component only
MR, DNH&W - Manitoba Region, Department of National Health and Welfare.

(4) Includes printing costs which were 0.1 to 0.3 per cent of total costs. For SHDP and MCDP these supply costs represent the costs as shipped to the field from the program's central warehouse. These supplies may be "warehoused" in the Region(s) or clinics before usage; however, these are the data that are available closest to the point of consumption. For MR, DNH&W the data relate to amounts purchased.

(5) Not separately identified in SHDP or MR, DNH&W, includes fluoride rinse supplies for rural part of Province.

(6) Includes labour costs where outside labour required, especially significant for MR, DNH&W.

Sources

1. Saskatchewan Health Dental Plan Annual Reports 1978-79 and 1979-80. Government of Saskatchewan, Regina.

2. Data provided by Dental Services, Department of health, Province of Manitoba, 1981.

3. Manitoba Region, National Health and Welfare, Medical Services. Cost Centre Statements for Dental Services by Month from November 1978 to October 1981. Department of National Health and Welfare, Manitoba Region, Winnipeg, 1981.

Dental Program (MCDP) exceeded $1.7 million and the Manitoba Region services cost $0.4 million. All of the above costs exclude monies spent for any referred services provided by private practitioners.

Table 3.3 outlines the percentage distribution of the costs by major category. These categories were compiled to correspond as closely as possible across the three programs. However, some discrepancies occur, especially as the MR, DNH&W includes freight charges in what are usually thought of as office expenses such as postage and telephone charges. The MCDP is the only program which controls separately the internal billings for the community preventive supplies, e.g. fluoride rinse supplies.

Salaries are unquestionably the largest component of costs in all three programs. They varied little within the two larger programs but increased from 56.6% to 70.0% of total costs for MR, DNH&W over the three years of the study. Salary costs are seen to be higher in the larger programs, declining as a percentage of total costs directly with program size.

In contrast, dental supplies represent as an average, over the three years, 4.1, 4.3 and 5.2% of total costs. Dental supplies, as purchased, seem to be a larger and increasing component of the smallest program, (MR, DNH&W) increasing from 5.9 to 8.0 and 11.4% of total costs. On the other hand, the costs of dental supplies, as shipped to the field, was constant at 4.4% of total costs for the SHDP and was relatively constant between 3.0% - 3.6% for the MCDP.

Over the three years under the study, dental supplies were the fourth in the order of costs behind capital, travel and accommodation costs and the aforementioned salaries. However, they greatly exceeded the costs identified under the headings of office expenses, repair parts, preventive supplies, laboratory charges and other.

3.1.4 Components of Changing Costs Per Unit of Service

Table 3.4 outlines the differential effect of the major components of annualized cost changes in the standardized unit of clinical service output, the relative time unit (R.T.U.). In the SHDP there is only one annual change which resulted in an increase in average total costs per R.T.U. of 9.8%. The table shows that 83.7% of that increase occurred in the salary component, 3.7% in the capital cost component, etc. Dental supplies were responsible for 4.9% of the increase in unit costs.

TABLE 3.4

PERCENTAGE OF ANNUAL CHANGES IN COST PER RELATIVE TIME UNIT ATTRIBUTABLE TO EACH MAJOR CATEGORY OF COST IN THREE CANADIAN PUBLIC PROGRAMS OVER 3 YEARS (1)

Category of Cost	Program: SHDP	MCDP		MR, DNH&W	
2 Year Period Ending:	Aug. 1980	Oct. 1980	Oct. 1981	Oct. 1980	Oct. 1981
Salaries	83.7	66.2	89.2	74.6	110.4
Capital	3.7	9.5	6.8	3.0	5.2
Travel & Accommodation	-0.4	14.7	31.8	10.1	-51.6
Postage, Telephone, Office Expenses and Freight	2.7	2.1	3.4	-2.5	6.7
Dental Supplies	4.9	2.5	-16.9	10.5	38.7
Preventive Supplies	-	3.3	10.5	-	-
Repair Parts & Service	0.7	0.5	1.9	1.0	1.2
Laboratory Charges	0.2	-	-	-	-
Other Costs	4.0	1.0	-25.7	3.4	-11.0
Total Per Cent (2)	100.0	100.0	100.0	100.0	100.0

(1) Calculated on

$$100 \times \frac{\dfrac{\text{(Category Cost Per Time (Unit Year "n + 1"})}{\text{(Total Cost Per Time (Unit Year "n + 1"})} - \dfrac{\text{(Category Cost Per (Time Unit Year "n")}}{\text{(Total Cost Per Time (Unit Year "n"})}}$$

(2) Percentages may not add to 100 because of rounding.

Source: Data supplied for Tables 3.2 and 3.3.

Both the MCDP and MR, DNH&W were experiencing swings in the outputs measured in this study. Thus costs per relative time unit both increased and decreased over the four periods examined. While this is a confounding variable, it does not hide the fact that in both programs the greatest impact on changes in cost per time unit is attributable to the salary component. Of less impact, in order, are travel and accommodation costs and then dental supply costs.

A calculation not included in the table showed that, for all three programs combined for the two-year period ending in the fall of 1980, salaries accounted for 70.7% of the increase in the costs followed in rank order by dental supples, 7.1%; travel and accommodation, 7.0%; capital costs, 5.1% and postage and telephone, etc., 3.0%.

3.1.5 Cost of Major Dental Supply Items

Tables 3.5 and 3.6 set out the quantities and prices of major dental supply items, as purchased for two years by the SHDP and as shipped to the regions for three years by the MCDP. The SHDP data are for 15 items and represent approximately 85% of the input costs identified under the heading dental supplies in Table 3.3. The data from the MCDP are for 14 items and, over the 3 years, represent an increasing proportion of the dental supply costs identified in Table 3.3. In the year 1980-81 these 14 items were 77.0% of the total supply costs. Thus, in both programs, these relatively few items represent the majority of dental supply costs.

Saskatchewan

The Saskatchewan data show the last posted price on the inventory control cards and the quantities bought during that year at various prices. The value of these 15 items was relatively constant as a proportion of total supply costs and total costs of providing dental services.

In 4 items, including rubber dam, professional towels, needles, DF 54 x-ray film, the prices stayed constant or declined. In 11 items prices rose, the greatest percentage increase being observed in dental composites, 127%; followed by dental amalgam, 82% and DF 58 x-ray film, 68%.

Of note is the fact that the largest price increase was observed for dental composite which is not made with silver nor, for the period 1979-80, attracted duties. Both amalgam and x-ray film, which also were duty-free, had lower rates of increase in price in spite of their high silver content.

TABLE 3.5

SASKATCHEWAN HEALTH DENTAL PLAN

SUMMARY OF 15 MAJOR DENTAL SUPPLY ITEMS PURCHASED WITH PRICES FOR 1978-79 AND 1979-80

	Year					
	September 1978 - August 1979			September 1979 - August 1979		
Item	Number	Price	Total $	Number	Price	Total $
Stainless Steel Crowns	-	-	90,073	-	-	10,265
Amalgam Capsules (1&2 spill)	177 200	$0.45	77,490	211 150	$0.82	173,143
Dental Burs (all types)	-	-	26,745	-	-	13,500
Local Anaesthetic	3 340	$6.49	21,677	3 210	$6.81	21,860
Paper Hand Towels	11 721	$0.91	10,666	12 521	$1.08	13,523
Rubber Dam			10,385			9,496
- 5" x 5"	1 991	$3.98		1 846	$3.87	
- 6" x 6"	528	$4.66		635	$3.70	
Exodontia Sponges (ea)	920M	1.02¢	9,356	1 360M	1.36¢	18,535
Professional Towels	362	$22.94	8,304	287	$17.92	5,143
Composite Material	200	$32.18	6,436	165	$73.18	12,075
Needles	1 341	$4.51	6,048	1 230	$4.51	5,547
X-ray Film			5,865			9,536
- DF 54	448	$7.11		503	$7.11	
- DF 58	291	$9.21		386	$15.44	
X-ray Chemicals			4,005			4,603
- Developer & Fixer	989	$4.05		955	$4.82	
Zinc Oxide Eugenol			3,584			3,853
- Powder	783	$2.74		665	$3.70	
- Liquid	403	$3.57		304	$4.58	
Saliva Ejectors	630	$5.39	3,396	605	$5.88	3,557
Calcium Hydroxide	463	$6.05	2,801	408	$7.75	3,162
TOTAL			286,832			307,797
Per Cent of Total Supply Costs Shipped (Table 3.3)			86.3			84.3

Source: D.A. Klooz, Personal Communication. Saskatchewan Health Dental Plan, Regina, November 1981.

TABLE 3.6

MANITOBA CHILDREN'S DENTAL PROGRAM
SUMMARY OF WAREHOUSE SHIPMENTS AND PRICES FOR 14 MAJOR DENTAL SUPPLY ITEMS, 1978-79, 1979-80 AND 1980-81

Item	YEAR November 1978 - October 1979			November 1979 - October 1980			November 1980 - October 1981		
	Number	Price	Total $	Number	Price	Total $	Number	Price	Total $
Amalgam Capsules			9,356			17,371			26,668
1 Spill	9 480	44.1¢		11 500	$ 1.13		15 150	$ 1.17	
2 Spill	8 000	64.7¢		5 210	84¢		10 050	89¢	
Anaesthetic			4,243			5,431			3,849
Xyolcaine	286	$ 5.82		511	$ 7.24		50	$ 8.21	
Citanest	406	$ 6.35		220	$ 7.87		389	$ 8.84	
X-ray Film			2,016			2,689			3,529
DF 54	152	$ 7.41		120	$12.58		128	$12.86	
DF 58	90	$ 9.89		72	$16.39		113	$16.26	
Crowns	3 057	67¢	2,048	750	67¢	503	1 148	67¢	767
Burs	2 050	66.7¢	1,366	1 662	77.3¢	1,285	2 862	77.4¢	2,122
Rubber Dam	377	$ 3.15	1,320	154	4.22	650	323	$ 5.72	1,848
Needles	263	$ 4.22	1,110	78	$ 4.22	329	194	$ 4.22	819
Sterilization Bags			1,047			940			2,618
small	47	$21.75		23	$32.08		61	$31.50	
Large	20	$18.87		9	$18.87		5	$18.87	
Toothbrushes*	12.0M	9.2¢	1,098	11.1M	11.6¢	1,288	10.4M	13.4¢	1,394
X-ray Chemicals			1,008			1,018			873
Developer	105	$ 5.37		115	$ 5.00		94	$ 5.40	
Fixer	77	$ 5.25		90	$ 4.92		61	$ 4.75	
Professional Bibs	62	$10.18	631	61	$12.18	743	76	$14.43	1,097
Cotton Sponges	660	$ 1.02	739	800	$ 1.02	816	1 051	$ 1.02	1,072
Sterilization Chemicals	46	$ 8.64	397	74	$ 8.64	639	103	$13.01	1,340
Wizard Wedges	33	$8.41	278	5	$ 8.41	42	3	$ 8.41	25
TOTAL			26,657			33,744			48,021
Per cent of Total Supply Costs Shipped (Table 3.3)			59.6			70.8			77.0

*Toothbrushes have been estimated at 1 per OHI session. Additional toothbrushes were shipped for community preventive programs. These amount to 2.2M = $201, 25.7M = $2981 and 31.9M = $4287 in the study years 1978-79, 1979-80, 1980-81, respectively.

Source: Inventory Control Cards, Dental Health Services, Department of Health, Province of Manitoba, Winnipeg.

Manitoba

The Manitoba data show, as the price, the weighted average of the price of the items shipped throughout each of the three years. Thus, the price of stainless steel crowns, wizard wedges, needles, cotton sponges and large sterlization bags which were shipped from an opening warehouse inventory, stayed constant. In the items which were bought during the three years such as amalgam, the price of $1.13 in 1979-80, for example, is the weighted average of prices which varied from 60¢ to $1.68 in that year.

As can be seen, the value of these 15 items shipped to the field increased each year until in 1980-81 they were worth $48,021. Increasing costs and quantities of amalgam resulted in the cost of amalgam increasing from 35.1% to 55.5% of the list of 14 items, and from 0.5% to 1.5% of total costs of providing care.

During the three years, the weighted prices as paid for these items actually bought, declined only for one, x-ray fixer and developer. This is an artifact as some quantities were obtained free with the purchase of new film processing equipment, thus reducing the weighted price.

In all other cases, the weighted prices to the program increased. Leading these price increases was 1-spill amalgam which in the third year was 165.3% more than in the first. In descending order of price increases were: rubber dam, 81%; DF 54 x-ray film, 74%; DF 58 x-ray film, 64%; sterilization chemicals, 51%; toothbrushes, 46%; small sterilization bags, 45%; professional bibs, 42%; Xylocaine local anaesthetic, 41%; Citanest local anaesthetic, 39%; 2-spill amalgam, 38%; and dental burs, 16%.

One other observation is that the removal of protective tariffs from items used in reconstructive dental surgery during November 1979 to October 1980 and their reimposition from October 1980 was not reflected in price trends. Based on the proportional usage over all three years (60.8% 1-spill/39.2% 2-spill), the price per amalgam capsule was 52.2¢ in 1978-79; 101.6¢ in 1979-80 (an increase of 94.6% and 106.0¢ in 1980-81 (an increase of 4.3%). Thus, when tariffs were removed prices to the program increased by 94.6% and when they were reimposed they rose by only 4.3%. As outlined eleswhere, prices may reflect more the costs of silver, plus the law of supply and demand, and the influence of the tariffs appears to have been lost in the movement of these other factors.

3.2 Discussion

This study was prompted on the basis of tariffs being reinstituted on the items used in reconstructive dental surgery. Amalgam alloys, stainless steel crowns, artificial teeth, cements, pins, etc., are usually thought of as being in this category and any influence of their price is likely to be greatest in the areas of the provision of endodontics, restorative and prosthodontic services.

In examining the public dental programs it is clear from Table 3.2 that only one of the programs (MR, DNH&W) provided any prosthodontic service and that was a declining component. Even with some prosthodontic services, MR, DNH&W and the other two programs, which are exclusively for the benefit of eligible children, in the main, provided services other than reconstructive dental services.

Preventive, diagnostic, radiographic, extraction and orthodontic services, for example, constitute 63.8% of the total services in 1978-79, 67.7% in 1979-80 and 56.1% in 1980-81 of the three program outputs.

Thus, it is not just the tariffs on items used in reconstructive dental surgery, but those that could apply to topical fluoride solutions, paper bibs and towels, etc., that could influence the costs of providing dental care in public programs.

Having noted this, however, it is clear that the tariffs levied as a per cent of the fair market value are higher on the more expensive restorative materials and it is also true that restorative care is a major output of public programs. Thus, in examining the outputs it would appear that there is potential to add significantly to the costs of dental care through the application of protective tariffs.

The terms of reference of the study mandate that not only should the effect of all dental tariffs be examined but that the relative influence of all cost factors be examined. In examining Table 3.3 it is clear that salaries have the largest influence on costs in the public sector programs. It is interesting to speculate on how the protective tariffs on other items such as clothing and imported wines, etc., are factored into the negotiations for salary dollars and thus serve to increase the costs of dental care. However farfetched that may seem, the potential for affecting the costs through the wage process is greater than through any other cost category identified.

As shown in Table 3.3, salary costs were calculated to make up over 68% of the cost of providing care in the average of the three public direct service programs examined. Salary

costs seemed to be a more important factor in the largest program (SHDP), where the distribution of staff and returns to scale of the capital investments served to reduce the importance of travel and annualized capital costs.

In the smaller programs fewer staff have to serve wider geographic areas, including fly-in remote communities. Thus, travel costs and the cost of the development of clinics, which can not be used full-time, serve to inflate the influence of these categories of expenditure.

Generally, after the costs of salaries, capital and travel, come the cost of dental supplies. These were seen, again on Table 3.3, to represent as an average of the three programs, between 4.1% and 4.3% of the total costs. Like travel and capital costs, the costs of dental supplies were a greater proportion of the expenditures for the smallest program (MR, DNH&W), where they accounted for 5.9% to 11.4% of the total expenditure over the three years.

The smallest program also provides a higher ratio of services requiring the more expensive supply items. For example, during all three years the proportion of restorative services exceeded the proportion of clinical preventive services for MR, DNH&W, whereas during the two years in the SHDP the reverse was true.

Table 3.4 shows the influence of each of the major categories of cost over 5 program years' experience.

Dental supply costs were found, on average, to rank as the third most important influence on the changes in cost per relative time unit. Supply costs ranked second during two of the five program years outlined in Table 3.4 and fourth in another two years. Their influence on the changing costs of providing a standardized time unit of care was found to be less than the influence of salaries on every occasion. In three out of five years, travel costs exceeded the influence of supply costs making it the second most important influence.

Table 3.5 and 3.6 outline the price and quantities of the major dental supplies bought or used by the two largest programs over five program years. It is clear from these tables that, although there are in excess of 800 separately identified items controlled in each of the programs, the majority of expenditures on dental supplies are identified by these few major items. Of course, the expenditures on some of the individually controlled items such as dental burs and stainless steel crowns have been aggregated beyond the individual item to make the data more meaningful.

TABLE 3.7

IMPACT OF DENTAL TARIFFS ON EXPENDITURES FOR MAJOR DENTAL SUPPLY ITEMS USED IN THE MANITOBA CHILDREN'S DENTAL PROGRAM - 1980-81

Item	Amount Spent on Item			Rate of Tariff	Hypothetical Amount if Tariff Not Collected	Difference
	Total $	Domestic $	Import $	%	$	$
Amalgam	26,668	0	26,668	15.7*	23,048	3,620
Anaesthetic	3,849	3,849	0	n.a.	n.a.	0
X-ray Film	3,529	0	3,529	free	n.a.	0
S.S. Crown	767	0	767	15.7	647	120
Burs	2,122	1,882	240	free	n.a.	0
Rubber Dam	1,848	0	1,848	15.7	1,558	290
Needles	819	0	819	free	n.a.	0
Wizard Wedges	25	0	25	13.6	22	3
Toothbrushes	1,394	1,394	0	n.a.	n.a.	0
Sterilization Bags	2,618	0	2,618	15.7	2,207	411
X-ray Chemicals	873	0	873	free	n.a.	0
Professional Bibs	1,097	0	1,097	15.7	925	172
Cotton Sponges	1,072	0	1,072	22.5	831	241
Sterilization Chemicals	1,340	0	1,340	free	n.a.	0
TOTAL	48,021	7,115	40,906			4,854

*The primary source of this information lists alloy under tariff item 71100-1. Other sources list different tariff item numbers which would make the rate 14.7% or 14.4%. The higher rate was used to estimate maximal effect.

Source: Table 3.6 and information on file from various sources on tariff items and rates.

In order to examine the effect of tariffs on these major items, the following two tables set out the applicable tariff beside each item, and estimate the hypothetical expenditure if the tariffs were or were not levied.

The first, Table 3.7, examines the 1980-81 Manitoba information, a period when normal tariffs plus the tariffs on reconstructive dental surgery were being levied. The table shows the amount of the items purchased from domestic or foreign manufacturers. The rate of duty is shown as interpreted from information supplied to the study by regional customs officials and other sources within the dental supply industry. The amount spent on foreign manufactured material is disaggregated into what would have been paid had the tariff not been collected and the remainder.* Of the $48,021 spent during the year, $40,906 or 85.2% was spent on supplies manufactured abroad. Tariffs of all kinds were estimated to result in additional expenditures of $4,854 or 10.1% of a major dental supply expenditures. Calculating this on the lower base, the effective increase in amount paid is $4,854 ÷ $48,021 - $4,854 or 11.2%.

The second table 3.8, examines the impact on Saskatchewan costs of both general protective tariffs, which were being levied, and tariffs on items used in reconstructive dental surgery, which were not being collected for the major part of that year. Again, it is seen that the majority of dental suppl items are manufactured abroad. In Saskatchewan's case, foreign manufacturers supply $253,772 or 82.4% of the items. Of this only $5,661 or 1.8% was attributable to the general tariffs. However, an additional $31,374 would have to have been paid if the tariffs on reconstructive dental surgery items had been collected. This amounts to an additional 10.2% of the actual amount paid. Taken together, the tariffs, if all had been collected, would represent $31,374 + $5,661 ÷ $307,798 - $5,661 or 12.3% increase on the lower base or 11.0% (12.3 ÷ 112.3) on the highest base.

The minimum impact of tariffs would occur if the balance ofdental supply items, i.e., those not identified in Tables 3.4 and 3.5, were either all Canadian or came in duty-free. In that case the protective tariffs on the dental supply items would effectively be between 7.8% (10.1% on 77.0%) and 9.3% (11.0% on 84.3%). The maximum impact would occur if all of the

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*It must be remembered the remainder is not the duty paid. Tariffs are levied, early in the process, on the foreign fair market value. After this the importer, distributor and retailer add their margins so that these become factored on to the tariff. The mark-up chain used in Tables 3.7 and 3.8 was 10%, 30% and 30%, respectively.

TABLE 3.8

IMPACT OF DENTAL TARIFFS ON EXPENDITURES FOR MAJOR DENTAL SUPPLY ITEMS USED IN THE SASKATCHEWAN HEALTH DENTAL PLAN - 1979-80

Items	Amount Spent on Item			Rate of Tariff	Hypothetical Amount of Tariffs Not Collected (1)	Difference	
	Total	Domestic	Import				
	$	$	$	%	$	$	
S.S. Crowns	10,265	-	10,265	free	n.a.	0	
				(formerly 15.7)	(18,777)		(1,612)
Amalgam	173,143	-	173,143	free (2)		0	
				(formerly 15.7)	(200,326)		(27,183)
Dental Burs	13,500	13,500	-	n.a.	-	0	
Anaesthetic	21,860	21,860	-	n.a.	-	0	
Paper Hand Towels	13,523	13,523	-	15.7	n.a.	0	
Rubber Dam	9,496	-	9,496	15.7	10,987	1,491	
Exodontia Sponges	18,535	-	18,535	22.5	22,705	4.170	
Professional Towels	5,143	5,143	-	15.7	n.a.	0	
Composite Material	12,075	-	12,075	free	n.a.	0	
				(formerly 14.4)	(13,814)		(1,739)
Needles	5,547	-	5,547	free	n.a.	0	
X-ray Film	9,536	-	9,536	free	n.a.	0	
X-ray Chemicals	4,603	-	4,603	free	n.a.	0	
Zinc Oxide Eugenol	3,853	-	3,853	free	n.a.	0	
				(formerly 10.0 BP)	(4,238)		(385)
Saliva Ejector	3,557	-	3,557	free		0	
Calcium Hydroxide	3,162	-	3,162	free	n.a.	0	
				(formerly 14.4)	(3,617)		(455)
TOTAL	307,798	54,026	253,772			5,661	(31,374)

Note: (1) During 1979-80 tariffs were temporarily dropped for items used in reconstructive dental surgery. The impact, if these had been collected, is shown in brackets for each item.

(2) The primary source of this information lists alloy under tariff item 71100-1. Other sources list different tariff item numbers which would make the rate 14.7% or 14.4%. The higher rate was used to estimate maximal effect.

Source: Table 3.6 and information on file from various sources on tariff items and rates.

balance of the expenditures paid tariffs at the usual rate of 15.7%. Underthis assumption Manitoba's maximum rate would be 11.4% [(10.1 x 77.0 + 15.7 x 23.0) ÷ 100] and the maximum rate for the Saskatchewan program would be 11.8% [(11.0% x 84.3 + 15.7 x 15.7) ÷ 100]. However, the more likely impact is expressed bythat observed for the majority, i.e. 10.1% to 11.0% of dental supply costs, if tariffs are collected on items used in reconstructive dental surgery.

If in fact, the impact of removing all tariffs on dental supply items would reduce the present expenditures by 10.6%, th mean of the two programs, then the total impact for the Manitob and Saskatchewan programs approximates 0.32% to 0.47% of the total cost of providing care. In the Saskatchewan case, where the published average cost per child in 1979-80 was $69.90, the saving in general tariffs would have resulted in an estimated saving of 5.5¢ per child ($\frac{\$5661}{.843}$ ÷ 122,139 children) and the imposition of tariffs on items used in reconstructive dental surgery would have cost 30.5¢ per child ($\frac{\$31,374}{.843}$ ÷ 122,139 children).

3.3 Conclusions

3.3.1 Quality of Data

This aspect of the study provided an opportunity to examin some of the influences on the cost of providing dental care in direct service public programs. Unfortunately, of the three programs only one, the smallest, provided care to both children and adults. Thus, the data are biased towards children's services, but then so are the public programs in Canada. The programs are provincial in scale and all use operating dental auxiliaries to provide the bulk of the care. All three of the programs provide the clinical services either in the school or in the community and this involves travel by staff to those centres. Thus, the public programs are quite distinct from the private practice mode.

Aside from the nature of the programs, as outlined in Table 3.1 there were some obvious differences in the completeness and nature of the data obtained from each program. Some futher differences occurred because the Saskatchewan and Manitoba programs record output data using computers. Thus, their data tend to be detailed and had to be compressed to the format of the MR, DNH&W. The Manitoba cost data also include the province-wide public health preventive program. No detail is available to separate the costs for the preventive services provided for the children outside of those who receive the clinical services.

These inadequacies of the exact comparability of the data required that the study make extensive use of percentage distributions rather than the whole numbers. Where the data are combined, as in Tables 3.3 and 3.4, it is not done with any confidence of exact precision but more with the hope it will let the reader better understand the underlying trend.

While one might wish to and indeed, with more resources, might be able to improve the comparability of the data, they are what were obtained and the writer is indebted to those who made them available and patiently explained the information.

3.3.2 Influences on Costs of Providing Dental Care

Keeping in mind these limits, it is evident that salaries are the most important components of both the total cost of providing care and the changing costs of providing a standardized unit of care (the R.T.U.). Salaries in 1979-80 consumed 77.0% of the total costs of all three programs and accounted for 70.7% of that year's increase in unit costs. In that same year travel and accommodation made up 7.7% of the total costs and accounted for 7.0% of the increase, and dental supplies were 4.3% of the total but accounted for 7.1% of the increase in unit costs.

Thus, in 1979-80, using the combined data for all three programs, the increase in dental supply costs were shown to have a greater influence on the increase in unit costs than did the increase in travel costs. However, using the individual program data, as in Table 3.4, travel costs were shown to have a greater influence on changing unit costs than supply costs in three of the five program years examined.

Capital costs, while an important component of total cost (2.8% - 10.3% of total costs), do not have the same relative impact on the changing cost of providing a standardized unit of care. Other costs in total, while not insignificant individually, take less than 2.0% of total costs and have a minor role in the changing unit costs.

3.3.3 Effect of Tariffs

Protective tariffs are not levied on major dental equipment nor on dental instruments. Tariffs, therefore, need only be considered as a factor in the dental supply component of the major cost headings used in Tables 3.3 and 3.4. Information in Tables 3.7 and 3.8 showed that the majority of dental supply items - between 82.4% and 85.2% - were manufactured in foreign countries. The nature and rates of the protective tariffs were such that the programs experience (on their major cost items)

cost increases of between 10.1 and 11.0 per cent. While minimum increases due to tariffs could be as low as 7.8% and maximum increases as high as 11.8%, if the average rate of 10.6% appliedacross all dental supply items, public programs could attribute between 0.32% and 1.2% of their costs to the tariff. It should be noted that the high estimate is based on the smallest program(MR, DNH&W), the program with the highest proportion of clinicaltreatment services. In the other two larger programs the estimated range of the impact of tariffs on dental supply items is estimated to be 0.32% to 0.46% of total costs.

As an example, in 1979-80, Saskatchewan costs per child enrolled, could have been reduced by 5.5¢ from $69.90 if general tariffs had not been collected and would have increased by 30.5¢ per child had tariffs been collected on imported items used in reconstructive dental surgery.

4. DENTAL MANUFACTURERS, TRADERS AND SUPPLIERS

D.C. Smith

4.0 Background

The impact of dental tariffs on the manufacturing and supply sectors of dentistry has direct implications for the costs of dental health services in Canada since a major part of dental treatment involves the use of dental materials in the treatment of the effects of dental disease. Since most dental equipment and instruments are duty-free the effects of tariffs relate primarily to dental materials used in the restoration of teeth and in the construction of prostheses to replace missing teeth.

Because of the intricacy of the operative procedures used and the large number of materials and devices involved in dental treatment, the provision and supply of dental materials and devices is a complex business. Such materials and devices may reach the dentist directly from the manufacturer, through wholesaler - retail supplier chains or through mail order. Further the construction of prostheses is usually undertaken by specialist dental laboratories which results in a further link in the chain which ends ultimately in the dentist and the patient.

Thus the evaluation of the effects of federal protective tariffs on (i) present and future costs of dental materials products and services; (ii) economic implications for Canadian sources of supply; (iii) sales of supplies from multinational corporations is difficult since a straight forward relationship between supplies and dental services does not exist. However, the data obtained in the present study does throw considerable light on these questions and allows a qualitative if not wholly quantitative estimate of the present situation.

4.1 Data Sources

Information and opinions have been obtained from the individuals and organisations listed in the Acknowledgments for this report.* The supply position across Canada is dominated by a few companies. Interviews in the Maritimes and in British Columbia as well as central areas of Canada have not indicated that there is any pronounced regional variation.

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* A number of other individuals and organizations were invited to give information and opinions but declined on the grounds of inability to provide substantive data.

In general, very good cooperation was received from all these individuals. Data was obtained by personal interview and from written submissions. Members of the dental trade provided price lists and pricing information as well as survey data. This data is acknowledged in the body of this report, where possible.

4.2 The Dental Trade in Canada

Most dentists purchase their materials and supplies for "reconstructive dental surgery" from dental supply houses. These retail sources vary greatly in size according to the local situation. The supply house (or dental depot) situation in Canada is dominated by three principal chains - Ash Temple Ltd. (24 depots); Denco Ltd. (12 depots); Healthco (Canada) Ltd. (Dental Depot Ltd.) (10 depots). Other companies are prominent in specific locales, e.g. Canadian Dental and Sinclair in Vancouver; National Refining, Lux and Zwingenberger and Weil in Toronto; Canada Dental in Montreal and Unident in Halifax.

Supply houses import many of their products but also obtain many from the larger manufacturers who have offices in Canada; for example, Dentsply Canada Ltd. (L.D. Caulk; Amalgamated Dental), Kerr Canada Ltd., Unitek Canada, and Johnson and Johnson. Such manufacturers have representatives who promote their goods to dealers. Some manufacturers sell direct to the profession (Unitek, Cooke-Waite Laboratories), others own supply houses (Dentsply - National Refining). A few sell to both dealers and dentists. Since there are only a few large manufacturers in the dental field making a broad range of products and many small specialist companies for items such as dental alloys, ceramics and resins, the marketing of dental products through supply houses which can carry an inventory and readily supply any of the more than 20 000 items available is a necessary structure. Thus, in addition to the major chains mentioned there are many other small supply companies across Canada.

Because of the growth of the health care market in the last two decades the number of companies manufacturing dental equipment and supplies in North America and the rest of the world has increased considerably. This growth and increased competition has lead in recent years to take-overs of smaller companies and a trend towards rationalizations of the dental market by elimination of speciality items which have only a small sales volume. Thus the majority of the restorative supplies used by dentists derive from large companies based in the U.S.A., Germany, Britain and Japan. As a result the majority of both the supply houses and manufacturers in Canada are affiliated to or owned by U.S.A. or multinational corpora-

tion:- Ash Temple - Mid-West American; Denco - McGaw Supply Ltd. - American Hospital Supply; Healthco (Canada) Ltd. - Healthco U.S.A.; National Refining - Dentsply U.S.A.; Dentsply Canada Ltd. - Dentsply U.S.A.; Kerr Canada Ltd. - Sybron-Kerr Corporation U.S.A.; Unitek-Canada - Unitek U.S.A. - Bristol Myers Corporation; Johnson and Johnson; Ivoclar Canada - Ivoclar - Leichtenstein; Beavers Dental Products - Mid-West American - American Hospital Supply Corporation; Cook-Waite Laboratories - Cooke-Waite U.S.A. - Sterling Winthrop Laboratories.*

This trend towards rationalization has resulted in increased competition, a tendency towards fewer brands of materials as well as generic products, and decreased margins due to promotional efforts by the manufacturers. Pressure has also been created by the increase in mail order business. Among companies prominent in this area are Silverman, Schein, Larr, and other smaller companies.

Such companies may offer prices up to 15% lower than the larger supply houses since they deal essentially in the high volume items and do not offer the range of auxiliary services traditionally provided by the supply houses such as same day delivery and respresentative support.

As noted previously, the majority of dental materials (i.e. used directly in restorative and prosthetic dentistry) are manufactured outside Canada. Many items used in significant volume by the dentist or his/her auxiliaries are disposables such as cotton or paper goods which are made in Canada, as are anesthetics and needles but these tend not to be viewed in the same way as materials for use in reconstructive dental surgery.

There are few dental manufacturers in Canada (ignoring dentifrice, tooth brush and floss) and of these only two or three have significant volume. It has proved difficult to obtain a complete list of such dental manufacturers but among the most prominent are:- Beavers Dental Products, Morrisburg, Ontario (dental burs); Johnson and Johnson, Montreal (amalgam alloy, composites); Williams Gold, Fort Erie (gold and base metal alloys); Ivoclar, Mississauga, Ontario (denture resin materials); General Waxes, St. Catherines; Canadian Wax, Thornhill; ABC Waxes, Montreal; Sensordent, London (denture cleaner, polishing pastes); Acridenta, Toronto (denture base teeth and resin); Olympic Acrylic Tooth Co., Toronto; Germiphene, Brantford (fluoride and pharmaceutical preparations; Nova Scientific, Vancouver (fluoride and sterilizing solutions; Delta Smelting, Vancouver (casting alloys); Domtar (plaster products). Several equipment companies are active

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* Since this report was written American Hospital Supply Corporation has sold its dental division to Sybron-Kerr.

including Cox Systems, Stony Creek (chairs and units); Modular and Custom Cabinets Ltd., Maple; Dental-Ez, Vancouver (units); Canadent, Vancouver (chairs); Nu-dent, Vancouver (units); Lux and Zwingenberger (x-ray and electronic units); Harco Electronics Winnipeg, (electronic units). Some companies also make paper and plastic disposables, e.g. Johnson and Johnson, and McGaw Supply, Toronto. However, such products are produced by other specialised companies in this field. A number of supply houses sell their own private label materials, these are however mostly imported. Some repackaging also takes place.

4.3 Dental Laboratories

The dental laboratory may be regarded as a special class of dental manufacturer utilising dental materials and devices to produce a finished prosthesis which will be inserted into the mouth of the patient. It thus uses some materials and equipment in the production processes and still other materials to fabricate the actual restoration or appliance. Thirty or more years ago many dentists had their own technician when complete or partial removeable dentures were common. As treatment procedures have become more complex with more crown and bridgework (i.e. fixed prostheses) utilising ceramic and metallic materials which require more sophisticated and costly equipment so most prosthodontic work is referred to commercial dental laboratories.

As with dental suppliers some larger laboratories provide a full range of services; others are more specialized carrying out only ceramic work, full denture construction or orthodontic appliance fabrication. Some larger laboratories have more than 100 employees (Shaw Laboratories, Toronto; Fine Arts Laboratories, Vancouver). Many have only a few employees down to one or two-man operations. There are a number of laboratory chains or affiliates e.g. Ando Laboratories, Vancouver (Division of Heritage Laboratories - Sybron-Kerr); Shaw Laboratories, Winnipeg; Shaw Laboratories, Toronto. Most of the larger laboratories belong to trade associations - Laboratory Association of British Columbia; Dental Laboratory Association of Alberta; Manitoba Dental Laboratory Association; Commercial Dental Laboratories Conference, Ontario; Quebec Dental Laboratories Association; Nova Scotia Dental Technicians Association.

There is no overall national laboratory association seemingly, although liaison is maintained between these organisations, and the Commercial Dental Laboratories Conference appears to play a leading role.

The actual number of laboratories far exceeds the numerical membership of these organisations. Thus the Laboratory Association of British Columbia has 45 members and the Commercial Dental Laboratories Conference has 35, whereas there are, for example, at least 102 laboratories in Toronto and 230 in Ontario. The total number of registered laboratories is

said to be 1400. However, accurate data on the dental laboratory industry does not appear to have been assembled. The position as to the number of trained technicians is complicated by the use of semi-skilled personnel by the larger laboratories in production line systems and execution of laboratory work by denture therapists individually. There may be as many as 1000 denture therapists (denturists, dental mechanics etc.), although the extent of their activity is also uncertain.

4.4 Usage of Dental Materials and the Dental Market

As pointed out earlier the range of materials and devices used in dental treatment is wide and complex. These products are used mainly by dentists but also by dental hygienists, denture therapists (denturists, dental mechanics) and by dental technicians. Dental hygienists work under the direction of a dentist who is usually responsible for supplies; the denture therapists are small in number and work also as technicians; the dental technician is usually engaged in the dental laboratory industry. There is little information on the supply requirements of denture therapists, the major users discussed here therefore will be the dentists and dental laboratories. The volume of work of the dental laboratories is obviously dependent on dentists and the patterns of dental practice (see Chapter 2).

The total dental supplies market in Canada (retail value) is estimated to be in the region of $150,000,000. This includes equipment and laboratory supplies as well as those dental materials known as "sundries" or "consumables" by the trade. The dental practice component is estimated to be about $115 million. Of this total about $55 million is for sundries and about $48 million for equipment; about $12 million is spent on artificial teeth. The wholesale value of the total market is about $77 million excluding costs of gold alloys.

There are approximately 11 500 registered dentists in Canada but most members of the trade consider that there are not more than 8000 active dentists in materials usage terms and most companies use a figure of 7000-7500 active accounts as the basis of the dental business in Canada. The latter figure is in accord with the estimate of most companies that the average dentist spent about $7000 a year on consumables in 1979 and about $8000-9000 in 1980. It is further estimated that this was about 6-8 per cent of the gross income of the dentist. The total amount spent on supplies, including instruments, is thought to represent 9-10 per cent of the gross income of the dentist. Expenditures on major equipment are lower since the turnover on such items as chairs and units only occurs every 7-10 years.

These data accord reasonably well with data from Statistics Canada and the U.S.A. dental trade associations given problems of import classification and inflationary effects. Table 4.1 shows data for commodity imports from Statistics Canada for 1980. Unfortunately, a completely detailed breakdown is not publicly available but it is evident that the total recorded import figure is about $67 million similar in magnitude to the estimated wholesale value. If the figure for dental supplies is given a 35% markup to retail level (see next section) then the individual expenditure on imported items by 7500 dentists would be $6600. (for 8000-$6250). If some allowance is made for Canadian production of dental amalgam and burs (drills), which are a significant fraction of the market, and recognition that some supplies are utilized by laboratories then a reasonable figure for sundry supplies in 1980 would appear to be $7000.

Similar considerations applied to the figures for imports of instruments and equipment with allowance for a greater share for laboratories than in the case if supplies result in an expenditure of $3000-3500 per dentist and thus a round figure total of $11,000-12,000 per dentist. When the total figures for imported goods are similarly analysed then expenditures of $12,000-13,000 can be allocated after allowance for Canadian products. These figures are of course estimates since the situation is much more complex than can be analyzed by the available statistics. However, they must be close to the actual since the majority of dental goods are imported and so provide a basis for assessment. It is interesting to note that if a 10 per cent Canadian contribution is added to the total import figure then the total retail value for 1980 is over $100 million, close to the figure estimated by the trade.

The American Dental Trade Association has estimated that the total market for dental professional supplies in 1979 in Canada was $80 million, with an additional $30 million of dental products consumed by dental laboratories (i.e. a factor of 2.7 times). The average gross income for dentists was estimated to be $120,000 (1979) with an expenditure of 7% of the gross on supplies and instruments excluding equipment. This was said to be greater than the average of 6% by American practitioners and this was explained by the additional duties paid on many supply items. This latter figure was based however on a study published in 1977.

Many of the American dental products exported to Canada are not classified in the U.S. export data in a manner leading to their separate identification. This is true also of Canadian statistics - disposable needles and syringes are classified as a separate item by Statistics Canada for example, thus obscuring the dental usage in this area. However, some products are separately identifiable and Table 4.2 shows data

TABLE 4.1

IMPORTS OF DENTAL SUPPLIES AND EQUIPMENT 1979/1980

Commodity	Value ($000) 1979	1980
Artificial teeth		
complete dentures	1,423	650
teeth	4,800	5,201
	6,222	5,851
Dental Supplies		
metal filling materials	11,237	17,060
orthodontic appliances	2,115	2,753
other supplies	13,306	17,245
	26,658	37,058
Dental Instruments, Equipment,		
Chairs	5,524	5,408
hand instruments	6,160	7,598
dental engines	166	222
drills	862	601
other parts	9,411	10,844
	22,121	24,673
	55,001	67,582

Source: Statistics Canada. Imports, Commodity Detail, 1980 Catalogue 65-207

for U.S. exports to Canada in 1979. These figures are for wholesale value. Export data on some important items such as anesthetic drugs, amalgam alloy, dental x-ray film, needles, syringes, cotton products, paper products and prophylaxis materials are not separately listed. Data are also not available on some essential laboratory products, including precious and non-precious metals, denture base materials, porcelain and acrylic veneering materials.

The study by the American Dental Trade Association indicates that exports from the U.S. amount to at least 64 per cent of the products purchased by dentists and laboratories. Canadian dental manufacturers supply approximately 10 per cent and the remainder is supplies by other sources, including other nations and products supplied by manufacturing industries that would not be classified as dental companies.

Comparison of the U.S. import figures for 1979 from Statistics Canada (which are the main contributors to Table 4.1) shows a close agreement with Table 4.2. This suggests that the other data is of the correct order of magnitude. Thus, it could be deduced that for 7000-8000 dentists in Canada each spends annually (on average) $208-237 on U.S. cements and filling materials other than amalgam alloy, and $161-184 on U.S. impression materials. Overall on a pro rata basis the figures would be $325-370 and $251-287. However, these are only broad estimates, the pattern of use of materials varies in different practices especially in those of a speciality nature.

According to the Canadian dental trade the most important consumable items used by the general dentist in approximate order of dollar magnitude are a) amalgam alloys; b) x-ray film; c) filling materials including composites; d) anesthetics; e) impression materials; f) paper and cotton products; g) burs; h) prophylaxis products. Some figures are available for usage and pricing of these materials but no overall detailed survey appears to have been done (or made available). It is said that these items account for 65% of the consumable costs of the dentist. In this connection it is of interest to note that the total U.S.A. market for dental products is close to 1 billion dollars (U.S.). The Canadian market is thus about one-tenth or one-eleventh of this, which corresponds to the ratio of the number of practising dentists (11 000 vs 125 000). An analysis of the usage of dental materials for the U.S.A in 1979 is available and the Canadian position may thus be expected to be the above fraction of that situation since it may be reliably assumed that patterns of general dental practice in the two countries are quite similar due to similar educational structures and availabilities of materials and services.

TABLE 4.2

U.S. EXPORTS OF DENTAL MATERIALS TO CANADA - 1979

Commodity	Value ($000) **
Impression materials	1,288
Cements and fillings*	1,664
Hand instruments and parts	3,300
Other dental instruments	9,726
Plastic teeth	2,400
Porcelain teeth	2,542
	20,920

* Excluding amalgam alloy

Source: American Dental Trade Association, 1981.

**Converted to Canadian Dollars

TABLE 4.3

USAGE AND CONSUMPTION OF DENTAL PRODUCTS - 1978

Product	Percentage Users	Average Monthly Quantity	Annual Quantity Projection	Annual Cost - Individual Dentist C$ 1980
Anesthetic cartridges	88	235	210 711 078	515
Disposable needles	85	176	154 212 217	145
Alginate (full mouth)	85	29	25 740 905	85
Composite resin (acid etch)	84	80	44 859 122	450
Carbide Burs	81	30	25 265 351	450
Prophy cups	78	85	68 886 829	200
X-ray film	73	2 boxes	3 059 977	505
Prophy paste with fluoride	69	89	64 049 646	150
Topical fluoride	68	46	32 579 377	150
Amalgam alloy	67	5.54 oz.	3 848 400	2400

Source: Consumable Dental Products. Annual Market Cycle Monitor, 1979. Harcourt Brace Jovanovich Dental Publications.

The analysis of consumable dental products in 1979 (Harcourt Brace Jovanovich Dental Publications) was based upon a sample, the majority of which (71.77%) were general practitioners; 31.2% had been in practice 5 years or less, and 71.0% were solo practitioners. The survey identified the percentage of users of a particular class of product, the average monthly quantity used and the annual quantity projection in the appropriate units. Table 4.3 gives these parameters for items which were used by two-thirds or more of the dental population. The approximate annual dollar retail value in Canadian dollars of these items is also shown.

Table 4.3 confirms that the major cost item for the average dentist is amalgam alloy, followed by the anesthetic cartridges and needles and the other items listed previously. The list is not comprehensive since paper and cotton products were not included in the survey and impression materials were presented in a manner difficult to analyze in terms of materials. Thus elastomeric impression materials (polysulphide, silicone, polyether) are not shown although there is evidence from the trade that dentists commonly would use six boxes of such materials a year at $20-40 a box. Thus total expenditures on impression materials may be $300-400 a year.

Although the magnitude of many of these items agrees closely with the estimates of the Canadian dental trade, some discrepancies are evident which may reflect some differences in practice, or changes since this survey was carried out or errors in the survey. The usage of composite resins in Canada appears to be greater than that indicated and the usage of amalgam less. Thus the monthly number of composite resin restorations would appear to be about 100 giving an annual consumption of about 230 g and for amalgam about 4 to 4.5 oz. i.e. $1,800-2,000 at $40 per oz. Other filling materials are not included in the composite resin figure. Bur usage seems to be overestimated; a more reliable figure for Canada may be 22 per month. Bearing in mind these omissions and modifications the total of $5,100 for the items as listed would be about 55% of the previous estimated sundries expenditure, and thus the trade estimate of 65% for all the major items previously listed seems to be confirmed.

These data then allow a basis for calculation of tariff effects on prices. However, these calculations will be relative since inflationary increases in actual prices are large at the present time. Table 4.4 shows price increases over the year 1980 for selected items. Amalgam alloy underwent large variations. Such changes may obscure the effect of tariffs.

TABLE 4.4

PRICE INCREASES FOR SELECTED DENTAL SUNDRIES 1980/1981

Commodity	Retail Prices January 1980 $	Retail Prices January 1981 $	% Increase
Composite - Adaptic	68.50	78.77	14.9
Composite - Concise	75.55	81.60	8.0
Anesthetic - Xylocaine	210.75	249.00	18.1
Impression Material Permlastic	20.00	23.80	19.0
Impregum	25.50	27.70	8.6
Burs (per 100)	115.00	125.00	8.7

4.5 Effect of Tariffs on Prices and Costs of Dental Products

As outlined in a previous section most dentists, dental auxiliaries and dental laboratories obtain their supplies from dental depots who in turn buy from wholesalers. The border import price is thus, in general, subject to a markup by both wholesaler and retailer before it reaches the dentist. Most products undergo these markups since most products are imported.

The markups have been high historically because of the nature of the dental business. Customs and exise costs and brokerage must be met immediately by the wholesaler and an adequate inventory of a large number of low volume items must be maintained. Inventory represents a significant investment and potential loss under recent conditions. There is a need to employ staff to deal with customs documentation. Additional bilingual literature must be printed in Canada. Representatives must be utilized in view of the geographical situation in Canada. The wholesale mark up may be 30-40% or higher - a figure of 40% will be employed here.

Similar arguments are advanced by retail dealers for the markup necessary for their distribution to the dentist. Additionally, many supply houses provide services which are not billed directly such as same day delivery, office planning, equipment set-up, long-term credit, stocking of small and low volume items and return privileges on goods such as part sets

of denture teeth. A restocking charge of 10% is usually applied in these instances. Most consumables and instrument items receive a 35 to 40% markup, equipment is higher, denture teeth may be marked up 200 per cent whereas precious metals may be as low as 15%. However, these markups are tempered by competition and special promotions and discounts. A 35 per cent figure will be adopted here although recently some dealers have used lower margins for consumables in response to mail order competition. It is of interest to note that one wholesaler found a margin of 25% was not adequate for his dealers.

Most supplies are sold through the larger supply houses who offer a wide range of services and products. There are three or four companies dominant in this field. About 15 per cent of supplies are estimated to be obtained through mail order companies. These companies supply many of the same materials from U.S. and other sources. The importing dentist must pay U.S. or other currency conversion and duty for legal importation thus minimizing the price differential. The dentist must also send cash with the order and has no extended credit. Thus the amount of Canadian mail order business is less than in the U.S.A. where it is said to be about 20%.

Another significant factor in final price of dental products to the dentist is federal sales tax. Generally materials employed in the mouth for the mitigation or prevention of dental disease carry no sales tax. Auxiliary materials which are nevertheless essential in dental treatment such as paper and cotton products and abrasive wheels may carry a sales tax of 9%. Thus some materials may be subject to both tariff and tax. Tariff schedules for dental materials were changed in the recent budget (Nov. 1981) and are shown in the attached Appendix.* The current rate for amalgam and resin filling materials is 12.5% for the Most Favoured Nation Tariff.

Table 4.5 shows the price changes which occur after importation at the various stages assuming a figure of 5 per cent to cover freight, brokerage and insurance costs. It is evident that for a $10 (U.S.) item the retail selling price in Canadian dollars is triple when both duty and tax are payable, and is 2.7 times higher when duty only is payable as would be the case with most restorative materials. When brokerage etc. and selling margins remain the same the 12.5% duty on filling materials has a similar percentage effect on the retail price. The actual duty ($1.5) is however 5.6% of the retail price. It is increased to $2.99 by the retail chain markup i.e. by nearly 200%. This may vary with different materials if these factors are variable.

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*Pages 72-74.

These calculations assume that margins remain constant with or without duty and tax. In point of fact members of the trade make the point strongly that the complexity of commodity classification and duties incur substantial manpower commitments which increase costs. Thus one major supply house considers that for every 1% in duty retail prices are affected by 1.25-1.35% depending on the item and the quantity. On this basis a 12.5% duty would result in an additional 15.6% increase in retail prices.

One might therefore expect that during the period that tariffs were removed from dental materials from November 1979 to October 1980 that prices might have changed by the difference between such duty effects and the cost of inflation. Since some major items had duty of 15 per cent, such differences might have been expected to be small. However, as Table 4.4 shows major items showed erratic and large increases during this period. This is an over-implification of course, the period is too short for the lead time required for tariff changes to show an effect, external factors affecting prices are not the same as in Canada, and for the major item, dental amalgam alloy, wild swings in the price of silver during this time dramatically affected the dental market.

TABLE 4.5

EFFECT OF DUTY, TAX, AND SELLING COSTS ON DENTAL MATERIALS COSTS

Original Cost U.S. $	Canadian Conversion $	No duty or tax	Duty* no tax	No Duty Tax**	Duty* Tax**
10	12	12	13.5	13.08	14.71
Brokerage freight insurance 5%		12.6	14.18	13.73	15.44
Wholesale margin - 40%		17.64	19.85	19.22	21.62
Retail margin - 35%		23.81	26.80	25.94	29.19

* Duty - 12.5% ** Tax - 9%

One other point should be made in this context. Since most materials are imported customs documentation including commodity classification is required even if no duty is payable, thus the trade has an unavoidable burden in this regard although greatly lightened by simplification and removal of tariffs.

From this analysis the minimum percentage effect on materials costs at the retail level is the tariff. The resulting amount will at least be passed on to the patient directly but this will be influenced by practice costs as discussed in the second chapter of this report. Here we discuss only the effects on materials costs at retail level.

Effects of Tariffs on Dental Practice Materials

Of the most important consumable items listed earlier and presented in Table 4.3 anesthetic materials and x-ray film are made in Canada; most paper and cotton goods are similarly manufactured here. Canadian manufactured burs have a major share of the market and a small proportion of prophylaxis products are also produced. There is no duty on burs and therefore the major effects of tariffs are thus on costs for amalgam alloy, composite resin and other filling materials, and impression materials with less contributions from other sundries. By considering Tables 4.1-4.3 and the limited market research data some cost estimates can be arrived at.

One market study indicates that Canadian dentists place 29 000 000 fillings a year. The average dentist places about 90 restorations a week, 63 in amalgam and 26 in composite resin. The annual consumption of amalgam is 275 000 troy oz. and 1 100 000 g of composite resin. For 7500 dentists this would mean an annual amalgam consumption of 36.7 oz. and 147 g of composite resin (i.e. 6 x 28 g packages). These consumption data are broadly in agreement pro rata with the U.S. data in Table 4.3, though as indicated earlier the amalgam is somewhat lower and the composite resin higher.

The amalgam data agrees with that from the clinical surveys in Chapter 2. The Canadian manufacturer of amalgam in that survey was found to have the major share of the market. Assuming this major share to be 50 per cent, the 50 per cent imported material would amount to 137 500 oz with a retail value of $50 an oz. (on average) and on average of total cost of $6,875,000. At a discount price of $40. per oz. the total would be $5,500,00. Duty paid would amount to $385,000 and $308,000 respectively. For 7500 dentists the average duty would therefore be $51 to $41 individually or for the 3750 who use the imported material $102 to $82. The latter figure seems more probable since most dentists bury on special offers. Thus

it may be calculated that the average duty per oz. of imported amalgam is close to $2.50 and 1.8¢ per restoration. The actual increase in retail prices due to duty is however $859,000 to $687,500 for the two alloy prices, i.e. $114. to $91. per dentist and $5.50 per oz. Each restoration costs 3.9¢ more.

These figures show that the average dentist spends $1,650 annually on amalgam. These costs might be reduced by $200 p.a. if non-dutiable materials were used. In the past it was not uncommon for the dentist to buy 100 oz. of alloy at one time (i.e. 2 years' supply). Thus his inventory cost would be increased by about $500 over this time because of duty. Currently, however, inventories are kept lower due to interest costs etc. and most dentists would probably buy not more than about 10 oz at one time. The price of imported and domestic amalgam alloys of similar type and quality is similar. This is explained by the domestic company as due to formulation and compositional differences, by better quality control procedures and by the greater cost of doing business in Canada. An unrelated company with U.S. and Canadian branches has also commented that there is an additional cost of 20% for doing business in Canada, all other things adjusted because of higher labour and literature costs.

Currently all composite resins are imported. The data mentioned previously and the U.S. data suggest that 800,000-900,000 composite resin fillings are placed each year in Canada. The consumption rate of 1.1 million g accords with an anterior filling weight of 120-140 mg. Because of the lower density the cost per gram of composite resin is much higher than for amalgam. The average amalgam alloy costs about $1.4 per gram whereas for composites this ranges from $2.5/g for conventional materials to $5/g for the more recent light-cured materials. Thus in terms of conventional composite the retail market value is about $2.75 million.

An educated guess would be that 20 per cent of the market is currently occupied by microfilled and light-cured materials. Current value may therefore be 3.1 million. This accords well with an estimated consumption of 5-6 boxes of 28 g of composite per year for each of 7500 dentists at a retail price of $70 a box ($3.15 million). Each dentist thus spends about $350-400 a year on composite resin. Thus the total duty is close to $175,000. Each dentist pays about $23 and the duty cost per filling is about 2¢. The actual total retail price increase is about $375,000, about $50 for each dentist and 4.5¢ for each filling.

Usage of impression materials is difficult to evaluate because of the wide range of materials but it is estimated by the trade that on average the dentist uses 10 cans of alginate

a year and 6 boxes of elastomeric impression materials. For these materials this represents a retail cost of $70 and $120-480 respectively depending on the type of elastomeric material. The total for both materials is thus $190 to $550, the average probably tending towards the lower figure. The total market figure for 7500 dentists and a $250 cost would be $1.8 million. Allowing for other materials at an individual cost of $300 gives a total retail market value of $2.25 million. Thus at a tariff of 7.5% (see appendix at the end of this chapter) the total duty would be $78,750 and for each dentist $10.50. Actual retail costs would be $170,000 in total and $23 for each dentist.

There are other contributions from the current tariffs on dental materials to the costs of dental practice for example, cold curing acrylic denture materials (10%) and impression waxes (7.5%). The contribution of these items seems likely to be quite small. The question of other sundries has been discussed in Chapter 2. Costs arising from prostheses will be discussed below.

The market and duty figures which have been calculated in the foregoing paragraphs are perhaps conservative although they agree with the consumption figures. These data are summarized in Table 4.6 together with revised figures assuming 8000 active dentists. It is evident that the total yearly duty from the major consumables used by the dentist directly would be at most $650,000, assuming the rates of duty given in the appendix at the end of this chapter. The total cost per dentist per year would be $80 to $130 at most. The dentist however pays more because of the multiplier effects of wholesale and retail margins. Thus the actual costs are $1,315,000 of which each dentist pays $175. These are the costs which are ultimately passed on to the patient. These sums here may be increased slightly by other items such as acrylic teeth, acrylic resin and waxes for which no direct figures are available in this context.

Effect of Tariffs on Dental Laboratory Costs

The dental laboratory utilizes some dental materials and devices in the construction of a prosthesis (partial or complete removable denture, inlay, crown, bridge or other fixed construction) and still other materials and equipment in the production processes used in fabrication of the actual restoration or appliance. The dental laboratory industry is therefore concerned with three aspects of materials costs in relation to the final health care costs to the patient: a) the materials and equipment costs in fabrication; b) materials and labour costs in the prosthesis as they are transferred to the dentist and then to the patient; c) the effect of competitive costs of

finished prostheses which may be processed outside Canada and imported. The existence of tariffs may increase a) and b) and thus accentuate the effect of c).

The concern in some areas of Canada, notably in British Columbia and the Maritimes and at border points, over prostheses which are imported at lower prices from the U.S.A. (because of lower labour costs and materials) has been assuaged by the inclusion in the budget of a 15.7% duty on such prostheses. This duty will decrease to 10.2% by 1987. This problem does not appear to be large over most of Canada.

The major materials used by laboratories in prosthesis construction are gypsum (plaster) cast products and casting investments, pattern waxes, artificial teeth, acrylic denture materials, precious metal (gold, platinum, palladium, silver) and base metal (cobalt, nickel, chromium) casting alloys. Under the present tariff structure only acrylic denture materials (10%) and low gold content and non-precious alloys (7% reducing to 5.5 by 1987) carry duty.

Some of the larger laboratories import their own supplies used in bulk, e.g. - plaster and model stone, but the majority of laboratories buy from supply houses as do dentists and are subject to similar markup though large quantity discounts may apply. Some laboratories have franchises to use materials from a particular manufacturer, e.g. casting alloys or tooth material, for construction of their prostheses. Laboratories usually add a markup to materials obtained from a supply house for use in prostheses e.g. casting alloy or especially denture material. This may further increase any tariff contribution in the final product. However, since the manufacturer of prostheses is a craft industry it is highly labour intensive and the major item in the laboratory costs which are transferred to the dentist is labour. From discussions with the industry, labour represents about 45% of the final costs, materials costs are 20-30%, the remainder being indirect and administrative costs with a profit margin of 9-10%.

Competition limits laboratory fees but these are also influenced by labour costs and the existence of dental plans, e.g. the government plan in British Columbia. Labour costs are 20-25% higher in B.C. than most other provinces thus work is sent to Alberta and also to the U.S.A. Reduction in laboratory materials costs could have a significant effect on costs to the patient since many laboratories mark up materials used in prostheses construction perhaps by as much as 50%. Typical laboratory costs for prosthetic items with the costs of the contained material indicated would be as follows:

Prosthesis	Cost	Material Cost	Duty Cost
full crown-gold	$ 85	$ 35	$ ---
full crown - non-precious	55	5	0.35
porcelain-metal unit-gold	120	35	---
porcelain-metal unit-non-precious	95	15	1.05
acrylic denture	150	25	2.50
partial denture-base metal	220	15	1.05

Actual material costs would be slightly higher than the simple contained costs because of wastage.

Unfortunately there is very little reliable information on the consumption of materials by laboratories in relation to prostheses produced and dentists usage. In recent years complete acrylic denture construction by dentists appears to have declined somewhat whereas the amount of crown and bridgework has increased. There has been a strong tendency towards low gold content and base metal alloys. The usage is variable across the country but probably is an average 60% base or low gold to 40% precious metal.

Data cited in the survey referred to in Table 4.3 suggest that on average the dentist may accomplish 14 units of porcelain-metal restoration a month, 4 crowns, 1-2 dentures and 1 partial denture. Duty for such a group would amount to $16/month. This is really a guesstimate and the actual figure would vary greatly in practice; however, it indicates an order of magnitude. Thus additional materials costs on prostheses due to duty perhaps amount to about $175 yearly (11 month-year) and could affect costs to patients by $262 overall. For 7500 dentists the annual duty paid through the laboratory would be $1,312,500. It would be useful if consumption figures were available to check this. Presumably such data could be made available through Statistics Canada.

4.6 Conclusions

This assessment from the dental trade aspect of the effects of dental tariffs on costs of dental products was done independently of the study on private practice (Chapter 2). The overall results show remarkably good agreement, which tends to support the data in each area.

This study shows that the total cost to the dentist for duty on consumables used directly in practice is about $80 when averaged over all dentists, and about $130 when amalgam alloy duty costs are ascribed exclusively to those dentists who use imported materials. As a direct cost to the patient this is 2 - 3¢ per filling. Total duty from these materials amounts to $650,000.

The effect of tariffs on materials on the direct costs of health care is increased by the marketing margins necessary for distribution of dental products. Thus the consequences of duty at the retail price level result in an additional $1,315,000 over the total retail price without duty. This approximates to $175 per dentist. It could be argued that there are additional complicating factors related to administration of the duty by the trade, inventory interest for trader and dentist, and exchange variation, but these are at present indeterminate and do not appear likely to alter the foregoing figures substantially bearing in mind that some account of these parameters must be incorporated into existing margins and fees.

Additional duty is incurred through materials for prosthetic construction. Only approximations can be made for this aspect but it could amount to $175 per dentist per year and a few dollars per patient. The total duty from this source is assumed to be about $1,312,500. Taking into account the rates of duty for the principal items involved this may represent a maximum of 50% more in direct costs to the patients, i.e. $1,968,750.

Thus the total duty accruing to the federal government each year from the tariffs on dental materials is $1.96 million. Each dentist pays about $260. The increase in dental health care costs passed on to the patient through the dentist is around $3.26 million, which averages to $448 per dentist.

The economic implications of this situation for the materials aspect can be summed up quite succinctly. Additional connotations are discussed in the next chapter:-

i) The effect of the present federal protective tariffs on dental health care costs in Canada is rather small and does not appear to be a major item in affecting present or future costs of both dental products and services. Labour costs and inflationary considerations appear to be much more important. However, it should be noted that the perception of the importing segment of the dental trade is that the complex tariff and duty structure imposes additional manpower requirements and paper work which would be substantially reduced by an absence of tariffs. An additional 5-10 per cent on retail prices is ascribed to this factor. In the absence of tariffs a price reduction of 15-20% of the retail price might thus be

expected. Thus removal of the tariffs would decrease the retail price of certain materials and services, especially dental amalgam, but it is uncertain whether the full effect would be felt by the dentist and by the patient since the individual amount is small. Given the present structure of the dental trade substantial reduction in costs could be achieved only by a much more efficient distribution system.

ii) The Canadian market for dental materials and products is a relatively small market. As improvements in dental health continue to occur through preventive materials and procedures such as fluoridation the demand for filling and prosthodontic materials will decrease in the next decade. The development of materials which have less toxic problems than dental amalgam will diminish the usage of that material. Thus the market for consumables will likely shrink. It is at present considered in the dental trade that a Canadian manufacturing company could not survive on Canadian business alone; export is essential. This situation seems to be even more likely in the future. Thus Canadian sources of supply are likely to be effective only if they are either very small producing specialist products in a local area or if they have a very large share of the Canadian market. Even in the present situation the example of one such company does not provide evidence that domestic prices can be much lower than imported materials. For tariffs to be effective in this context they would appear to require to be much higher than at present. Other mechanisms of promoting Canadian sources of supply of dental materials and products may be more effective.

iii) The effects of tariffs on sales of imported materials in Canada, especially by multi-national corporations, seem to be small. It appears that present tariffs are not a barrier or a consideration in the decision of such companies whether or not to market a new product in Canada. It is essentially a marketing decision as to whether the sale is profitable since there is no effective competition in Canada in most instances. No good data exists to contrast Canadian and foreign products and prices where such a comparison can be made. The most successful manufacturing company (dental burs) based in Canada succeeds even in the absence of a tariff because of the technological merits of its fabrication procedures and the quality of its product. However, the peculiar variability of the tariff structure i.e. no tariff for dental burs nor for dental gold (to mention two domestic manufacturers) is seen as a disincentive to Canadian manufacturers. It is said that we are the only country in the world which does not have an import duty on dental gold and that this has led to a decrease in the number of domestic gold manufacturers and an increase in the amount of imported dental gold at low prices.

iv) The real effect of a competitive situation between foreign and domestic manufacturers is hard to assess in the absence of hard data on dental materials pricing and sales. The views of domestic manufacturers and suppliers are opposed in the present situation. The former require tariff protection whereas the latter would, in general, like to see tariffs removed. The data developed in this study indicate that the federal government collects $1.96 million in duty and creates additions expenditure on dental health care costs of $3.26 million. This balance is adjusted by the protective effects of the tariff which require further clarification. In the end the production of dental materials in Canada perhaps should be regarded as a supply and strategic necessity which may be encouraged by the existance of tariffs. In this light the existing tariffs may be a small price to pay. However, for broad-based industry much higher protective tariffs would be needed if this were the chosen mechanism to facilitate domestic manufacture and this would probably invite foreign retaliation.

APPENDIX

PROPOSED RATES OF DUTY FOR MATERIALS

FOR USE IN

DENTAL RECONSTRUCTIVE SURGERY

NOVEMBER 1981

Tariff Item		British Preferential Tariff	Most-Favoured-Nation Tariff	General Tariff	Rates in Effect Prior to Rates Proposed in this Motion		
					B.P. Tariff	M.F.N. Tariff	General Tariff
	Dental prostheses and parts thereof; materials that form a component part of the foregoing when used in the manufacture of dental prostheses or that are specifically designated for use during the manufacture of dental prostheses but do not form a component part therof; materials, excluding anaesthetics, for use in dental reconstructive surgery:						
48001-1	Other than the following	Free	Free	25p.c.	15p.c. 15p.c.	17.5p.c. 15.7p.c.	25p.c. 25p.c.
48002-1	Dentures, bridges, crowns, and other similar dental prostheses	15p.c.	15.7p.c.	25p.c.	15p.c.	15.7p.c.	25p.c.
	on and after January 1, 1982	14.8p.c.	14.8p.c.	25p.c.			
	on and after January 1, 1983	13.9p.c.	13.9p.c.	25p.c.			
	on and after January 1, 1984	12.9p.c.	12.9p.c.	25p.c.			
	on and after January 1, 1985	12p.c.	12p.c.	25p.c.			
	on and after January 1, 1986	11.1p.c.	11.1p.c.	25p.c.			
	on and after January 1, 1987	10.2p.c.	10.2p.c.	25p.c.			
48003-1	Artificial teeth, not mounted, and material for use only in the manufacture thereof..	Free	Free	Free	Free	Free	Free
48004-1	Dental casting wax, dental plasters, dental stone, silica sand investments and other similar materials for making casts or models for dental purposes	Free	Free	25p.c.	Free 15p.c.	5.5cts./ 100lbs. 15.7p.c.	5.5cts./ 100lbs. 25p.c.

Tariff Item		British Preferential Tariff	Most-Favoured-Nation Tariff	General Tariff	Rates in Effect Prior to Rates Proposed in this Motion		
					B.P. Tariff	M.F.N. Tariff	General Tariff
48005-1	Acrylic moulding compositions, whether or not fully formulated, when for use in the manufacture of dental prostheses	10p.c.	10p.c.	25p.c.	10p.c.	10p.c.	25p.c.
48006-1	Composition metal, but not including such metals in powder or pellet form, for dental purposes	Free	7p.c.	10p.c.	Free	7p.c.	10p.c.
	on and after January 1, 1982	Free	6.8p.c.	10p.c.			
	on and after January 1, 1983	Free	6.5p.c.	10p.c.			
	on and after January 1, 1984	Free	6.3p.c.	10p.c.			
	on and after January 1, 1985	Free	6p.c.	10p.c.			
	on and after January 1, 1986	Free	5.8p.c.	10p.c.			
	on and after January 1, 1987	Free	5.5p.c.	10p.c.			
48007-1	Metal alloys, including alloys of precious metals, prepared for use in dental amalgams by the mere addition of mercury; dental amalgams and other similar dental filling materials	10p.c.	12.5p.c.	25p.c.	10p.c.	14.4p.c	25p.c.
48015-1	Models or casts used in the manufacture of dentures, bridges, crowns or other similar prostheses	Free	Free	25p.c.	15p.c.	15.7p.c	25p.c.
48016-1	Dental impression compounds including impression waxes, whether or not in kit form	7.5p.c.	7.5p.c.	25p.c.	9.2p.c.	9.2p.c.	25p.c.
					13.6p.c.	13.6p.c.	25p.c.
					15p.c.	15.7p.c.	25p.c.

5. NATIONAL AND INTERNATIONAL ECONOMIC IMPLICATIONS*

Dr. P. Manga

The five terms of reference under this heading are addressed, in turn, in this chapter.

5.1 The effects of reinstating the customs tariffs on securing Canadian sources of supply of dental materials and products.

The reinstatement of the dental tariffs is consistent with the general policy of the federal and provincial governments in Canada to encourage domestic production of health care products. The objection by Johnson and Johnson and other domestic producers is that the elimination of duties in 1979 constituted a dramatic change in the protection afforded by the tariffs. It also generated uncertainty about the reliability and consistency of the governments' policies vis-a-vis, not only the local production of dental materials and products but health care goods generally (medical devices, drugs, biologicals, medical equipment, etc.). In brief, they objected to alterations in the "rules of the game" after they had made commitments to invest in Canada. Inconsistent or uncertain federal policy adds to financial risks to new investment - the ultimate effect of which is to lower the level of investment. It was suggested by officials of the Department of Industry, Trade and Commerce that some firms would shelve their plans to diversify their product lines if the tariff protection were totally removed.

Economic theory suggests that tariff protection should create new and additional investment in Canada, which means the creation of new employment opportunities and jobs. As well, increased domestic production means greater assurance of supply and an improvement in our balance of payments because of import substitution and exports to other countries. One might add two further advantages of tariffs, at least in theory. The increased local supply of dental materials means greater competition for importers, at least for some materials for which the Canadian manufacturers have a sizable share of the market. Second, the availability of a domestic supply of dental goods protects Canadian dentists from price fluctuations resulting purely from changes in the exchange rates.

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*This chapter was written by Dr. Pran Manga as a consultant to the study team. Dr. Manga was asked as a health economist to give his perspective on the five terms of reference listed under the heading of this chapter.

While these are positive and worthwhile effects of the tariffs, there are hardly any reliable data to demonstrate the extent to which these advantages of tariff protection have been realized in Canada in the dental products industry. For example, an inquiry about as basic a fact as the number of persons directly and indirectly employed in the manufacturing of amalgams yielded guesstimates ranging from 10 to 30. This is a rather wide range if one were to develop estimates about the costs of protection per job created. While the Department of Industry, Trade and Commerce is now in the process of gathering such basic data they will presumably be all recent or current figures. Only the firms themselves have the historical data which are needed for a proper assessment of the effect of the dental tariffs. Furthermore, as the Canadian Dental Association asks in its brief to the Senate Committee, what is the cost achievi[illegible] these objectives, especially those relating to the creation of j[illegible]

The Canadian Dental Association implicitly raised the question of whether the federal policy was based on a cost-benefit analysis of reimposing the dental tariffs. The answer is, of course, that it was not because such an analysis could not have been undertaken given the serious lack of the required information. Officials in the Department of Industry, Trade and Commerce do have anecdotal evidence or specific cases which indicate that tariffs have led to greater investment in the local production of dental materials (amalgams for example), but it is doubtful if they have ever undertaken a definitive analysis to answer the question raised above.

The discussion thus far does not dispute the fact that tariff protection does lead to a greater domestic production of dental materials and products. This surely is the case. Thus the reinstatement of dental tariffs should have the effect of preventing any diminution of local production that might have begun when the tariffs were removed. But a quantitative analysis of this effect is very difficult if not impossible to undertake.

5.2 The effects of customs tariffs on present and future costs of dental materials, products and services.

The Canadian Dental Association (CDA) has repeatedly asserted that the imposition of dental tariffs will have a significant impact on the cost of dental services to the patient. The CDA has not, however, provided any quantitative estimates of the impact on consumer prices of the dental tariffs on any one item (for example, amalgams) nor on all the dutiable materials and products taken together. That is, no-

where does the CDA say what the implication of the dental tariff is on, say, the cost per filling or the average per cent increase in dental fees for select services.

The lack of supporting quantitative data is especially noteworthy given that the CDA had sufficient time to develop the required estimates and more importantly, has access to pertinent information. This is not to say that duties do not have an impact on prices, but since they are (a) relatively small, (b) imposed on select products only, and (d) do not change frequently, such duties must be treated on an ad hoc basis in pricing decisions by dentists. Dentistry is a very labour intensive industry. Much of the capital equipment and supplies are not dutiable and as the CDA itself acknowledged are also exempt from sales tax. The proportion of nonlabour inputs that is dutiable is therefore a small proportion of the overall costs of dental practice. Of course, the cost of the duties per se is a fraction of the aggregate costs of nonlabour inputs that are subject to the duties. It is difficult to see then just how the dental tariffs in question can have a severe effect on costs.

How might one estimate the impact of dental tariffs on prices? A good starting point is to assume what the CDA believes about the pricing practices among dentists. In an oral submission to the Standing Senate Commitee on Banking, Trade and Commerce, the CDA stated: "our members will receive no economic benefit from the success of our submission, nor will they be economically injured by our failure. The increased costs to dental patients result from the fact that costs of dental materials are passed on without markup to such patients" (JCDA, No. 7, 1981, page 410). If one further assumes that distributors are likewise inclined to pass along the duties on imported dental material to dentists without markup, a "conservative estimate" of the impact of the duties on the cost of dental services can be estimated.

The objective is to estimate the increment in the costs of providing dental services due to the imposition of dental tariffs on imported dental materials. For amalgams, an admittedly rough estimate of the current 14.7 per cent tariff translates to a mere three to five cents per filling! Distributors may well have markups on the duties paid to cover administrative and transaction costs. Even if this markup were 100 per cent, the impact of the duty on amalgams per filling would be miniscule in relation to average fee for fillings. It is to be noted that amalgams are one of the most common materials used in dental practice and constitute a major component of the dutiable products at issue.

Duties on amalgams were of great concern to the CDA and were subject to particularly strong censure in their briefs.

The CDA itself says that "the cost of increased dental materials will fall primarily on the most basic reconstructive surgery, that of filling cavities" (JCDA, No. 7, 1981 page 410). (The Department of Finance has a consultant's report which estimated that the price effect of the duties on amalgams is in the range of 3 to 25 cents per filling. According to Mr. Satherstrom of the Department's Tariff Division, the 25 cent estimate was the highest imaginable figure based on highly improbable markup margins. Even 25 cents per filling works out to a fraction of one per cent in the increase in the price of a filling that is attributable to the imposition of the duty on amalgams.)

The case of duties on amalgams discussed above can in principle be replicated for the other dental materials and products as well. The CDA is in an excellent position to undertake the required analysis, for what is required is detailed costs and production data from a representative sample of dental practices. It might be noted that if dentists spread the burden to all the dental services they provide rather than concentrate on a few services which require the dutiable materials the price effect of the duties would be further diluted. In fact, if dentists do regard duties as part of the overhead costs then it makes sense to spread this cost over all the services dentists provide. Either way, the estimates are likely to indicate a rather insignificant impact of the dental duties on the prices of dental services.

Perhaps, most importantly, it must be noted that the impact of tariffs on the prices of dental services is a one-shot affair. That is, the duties are factored into the dental fee structure when they are initially imposed or soon thereafter, but they cannot be added to the costs of dental services ad infinitum. (The burden of the duties can, of course, increase with increases in the prices of imported materials or products but in this case the real culprit is inflation and more particularly, price change in a few materials such as silver in the case of amalgams.) This point is specially revelant to the present controversy. The federal budget did not impose new duties but merely reimposed duties that prevailed for about 16 years. These duties must have been fully factored into fee schedules and it is unrealistic for the CDA to pretend that prices must now be raised to incorporate the costs of the duties as if they were a totally new and additional burden.

The dentists' case for any price increases attributable to the reimposition of duties would be credible if tney had in fact lowered the prices of dental services during the one-year period November 1979 to October 1980 when these materials were duty-free. The price decrease should also have been significant if the arguments made by the CDA about the severity of the

effects of dental tariffs is to be believed. Of course, there was no reduction in dental fees, not because dentists did not wish to pass on the "savings" or "reductions" in material costs to patients but because the dental tariffs did not have much of an impact on dental fees in the first place. Indeed, the reduction in the prices of dental services would have been more probable if importers and distributors of the dutiable materials and products passed the windfall gain they accrued from not having to pay the duties on to dentists via lower prices. It is difficult to make the case that during the recent duty-free period importers reduced the prices of the imported materials by the amount of the duty and the usual markups on the duty.

The point made above also implied that the effect of the dental tariffs on the future costs of dental materials, products and services should be negligible. Indeed this is all the more so, since the rates of duties on various products and materials are to be reduced over the next five years in accordance with the recent Tokyo agreement.

5.3 The effect of the customs tariffs on international trade agreements.

The Canadian Dental Association has alleged that the "proposed imposition of a tariff under Bill C-50 on dental materials is in violation of Article II of GATT (see Appendix 8). Paragraph 5 of Article II is designed to prevent contracting nations from reclassifying goods contained in tariff items covered by GATT in an attempt to escape their obligations. We submit that the proposed amendment is in direct contravention of such provision and of Canada's international commitment in that dental materials used in dental reconstructive surgery are being removed from Tariff Item 47810-1 and are being made subject to a higher tariff rate than they would otherwise be if they remained in Tariff Item 47810-1" (CDA, Submission to the Standing Senate Committee on Banking, Trade and Commerce, June 9, 1981; page 10).

The GATT is a complex, legalistic and rather lengthy document and the issue raised by the CDA here is really a matter for legal experts in the interpretation and administration of GATT. The Department of Finance is of the view that this issue was duly considered by it and that the reimposition of the dental tariffs is not in contravention of GATT.

A number of further observations pertinent to this issue follow.

The CDA's reference to Article 5 is mistaken (perhaps it was a typographical error). The relevant paragraphs is number 3 which states that "No contracting party shall alter its method of determining dutiable value or of converting currencies so as to impair the value of any of the concessions provided for in the appropriate Schedule annexed to this Agreement." Paragraph 5 of Article II permits a signatory country of GATT to appeal to another signatory country if it believes that the latter country has altered the treatment contemplated by the tariff concessions agreed to in 1979. For example, the U.S.A. could appeal to Canada if it felt that Canada was in contravention of GATT in reimposing the dental tariffs. To our knowledge no such appeal has been made.

It should be noted too that virtually all countries that produce dental materials, equipment and products impose duties on imported dental goods. The United States is no exception to this rule. While the rates of duties vary from item to item, it is thought that on average the American rates are higher than ours. However, since member countries have agreed to implement the Tokyo agreement of 1979, a reduction in the disparities among rates is already in progress. The pervasiveness of duties of dental materials among the industrialized countries suggests that no country is likely to challenge the Canadian government policy change on dental tariffs.

It should be further noted that the CDA's judgment about the propriety of the federal policy change takes as its reference the change in the interpretation of the Customs Tariff at the end of 1979 which had, of course, the effect of allowing the importation of the dental materials duty free that were previously dutiable. The GATT agreement of 1979, which calls for a reduction in the rates for Tariff Item 47810-1 of 15% to 9.2%, preceded the latter change. Thus, one possible defence the federal government has against the charge that it is in contravention of GATT is that the 1980 Budget merely restored the scope and application of the Tariff Item 47810-1 to that which was originally intended and which was in force at the time of the GATT negotiations and agreement of 1979. Indeed, it is the history of the dental tariffs in Canada since 1963 that is relevant in deciding whether or not the October 1980 Budget decision is in contravention of GATT, and not just the history of the dental tariffs since November 1979.

Clearly, the GATT issue can only be resolved decisively if a foreign country that is materially affected by the Canadian policy initiative decides to challenge the Canadian government on the matter.

5.4 The effect of reinstating the customs tariffs on the costs of supplies and materials sold in Canada by multinational corporations.

It is very difficult to isolate the effect of dental tariffs on the prices of imported dental materials and products, even if adequate price and volume data are available. The data, however, are not readily available.

Soon after the October 28, 1980 federal budget, a few importers advised dentists that the reimposition of dental tariffs would be passed on to them via higher prices for imported dental materials and products. The advertisements did not indicate by how much the prices would be increased. Empirically, it is very difficult to estimate the price-increasing effect of the federal policy change. It is, however, reasonable to expect that prices would rise by less than the full value of the duties for the following reason. As was pointed out earlier, it is unlikely that importers and distributors would have reduced the prices of the imported dental materials and products by the full value of the tariffs (and whatever markups that are typically added on) when these goods became duty free in November 1979.

Thus, the policy change on this occasion probably resulted in a windfall gain to importers and distributors. It is possible then, that the reimposition of these dental tariffs almost a year later would not necessarily lead to an increase in price by the full amount of the duties because of the existence of these windfall gains. Another factor which would constrain the amount of the increase in prices of imported materials is competition from domestic producers, at least for those commodities for which the domestic supply constitutes a sizable share of the Canadian market.

The reimposition of duties does not affect at all the costs of producing the dental materials and products of foreign firms. The effect of the duties (especially since these duties are not new but merely a reinstatement of them) is much too small to affect the size of the production runs of foreign firms to influence their costs. In general, it is thus unlikely that the prices that the foreign firms would charge for their goods to Canadian importers would be influenced by the reimposition of the dental tariffs.

5.5 The effect of the reimposition of the customs tariffs on the balance of trade between Canada and other countries.

Since one of the major purposes of the dental tariffs is to protect local producers of some of the dental materials and products in question (especially amalgams), their reinstatement

by the federal government can only improve our balance of trade vis-a-vis other countries, and most notably, the United States. However, it must be appreciated that since domestic production of these materials in relation to the total market for them is rather small, ranging from a high of about 37 per cent for amalgams to virtually nothing for some waxes and adhesives, the impact on the overall Canadian balance of trade is for practical purposes negligible.

Elimination of the tariffs would certainly worsen our balance of trade as Canada would then import more of these goods. If the elimination of the tariffs were to lead to the total demise of the domestic industry, the impact would, of course, be greater but certainly not great enough to cause a noticeable change in the overall balance of trade and definitely not enough to cause any change at all in the exchange rate between Canada and other exporting countries. International trade accounts for about a quarter of our gross national product, and the size of the domestic production of the dutiable dental materials is just too miniscule in relation to the overall international trade to make a difference.

It should be noted that the change in 1979 which made the dental materials and products at issue duty-free, did not last long enough to have any noticeable effect on our balance of trade. It is obvious then that the reimposition of these dental duties would likewise have very little impact on our balance of trade. Indeed, all it does is to prevent the balance of trade from worsening as it surely would have if the 1979 decision remained unchanged.

6. CONCLUSIONS

This final chapter draws together some of the findings from each of the four preceding chapters. Since this is intended to be a concluding summary it purposefully avoids presenting all the findings and comments found in the individual chapters which must be read for such details. There are, however, some common fundamental problems which must be stated here.

6.0 Data and Analysis Problems

The first difficulty concerns the quantity, quality and accessibility of the data required to answer satisfactorily the questions posed in the study's terms of reference. This was frequently mentioned earlier in this report and is repeated here simply for re-emphasis. The tariff per cents themselves also posed some difficulties. Not only were new dental tariffs

which would affect the future costs of imported dutiable items introduced during the course of this study but it was also discovered that the previous tariffs (used here to analyze the historical data obtained in two chapters) are not as clear-cut and universally applied as some believe. This issue is further confused by the extent of the tariffs being considered; that is, only those involved in dental reconstructive surgery or all dutiable imported consumable supplies. The markups applied by the wholesale importer and retail distributor to dental products are also not as clear-cut and simple as the basic, average figures, used in the analysis of this report, imply. It is very likely that variations in these markups occur both over time and at any given point in time within the industry due to "specials", freight charge differences, and differing company policies and profit margin experience. Also, varying levels of direct importation of dental goods from foreign-based supply houses by dentists confound the determination of over-all markups and duty costs to be used in these analyses. Even the determination of the number of active licensed dentists who potentially use the imported materials in question is not simple. Estimates from the dental industry and those based on downward adjustments of the number of licensees do not agree.

However, it is not unusual to find uncertainties in a complex analysis. In such circumstances it is the reasonableness of the assumptions necessary for analysis completion that counts. Whatever one's decision here, the similarity of findings in this report when different sets of data are analyzed independently is striking and to us, at least, reassuring.

6.1 Dental Fee-setting

The report suggests that fee-setting in private dental practice may be influenced by very high increases in the costs of particular supplies, as evidenced by the recent amalgam restoration surcharges as silver alloy rose to record high price levels. However, it is uncertain whether dentists are selective about fee increases when dental material increases are more modest and non-specific. In these instances dentists may spread these greater overhead costs among all services. One point about the fee-setting process which is very evident (but seems to have been forgotten by many) is that dental tariffs on consumable supplies are not new charges. Except for the period of nearly one year following November 9, 1979, when the tariffs on one important group of dental supplies were removed, import tariffs have existed at least since 1963 -- a period of 18 years.

6.2 Tariffs and Supply Prices

It was observed that the price of some domestically-produced dental products is equivalent to imported dutiable ones of similar quality. Although the increased cost of doing business in Canada may be one explanatory factor for this price equivalence, the possibility also exists, according to economic theory, that the domestic product with a fair share of the market provides an incentive for importers to keep the cost of foreign goods down to the domestic levels. An additional benefit to Canadian dental providers arising from domestic production (which restrictive tariffs encourage) is that they are protected from fluctuations in price due to currency exchange variations.

Based on both theoretical considerations and the anomalous changes in the price of certain supplies observed before, during and after the changes in the tariff imposed on dental reconstructive surgery, it appears that there was little decrease in price when the duty was removed and, later, little increase in price due to the reimposition of the duty. The tariff impact in this natural experiment situation was too slight to detect by the methods used herein.

6.3 Amaglam Alloy Consumption

Using two different approaches the consumption of amalgam alloy in private dental practice -- the highest consumable supply cost component — was estimated at 40 ounces per dentist per year. About one-half of this alloy was imported and the resulting cost of duty was estimated to be from $54 to about $100 per dentist per year.

6.4 Tariffs and Dental Care Costs

Regarding the key question of the impact of the protective tariffs on dental care costs, all four analysts independently demonstrated that this cost per dentist (or, in some instances, per patient or per restoration) was very small relative to changes in other practice cost components. Since the methodologies and data utilized varied it is somewhat surprising that the findings were so similar. In the survey of private practitioners it was suggested that the retrospectively determined cost of the duty on all imported supplies per dentist per year was between $178 and $331, depending upon whether only the governmental share ($178) or this plus the industry's markup on this share ($331) was considered. These costs represented from 2.8% to 5.2% of total supply expenditures or from 0.18% to 0.34% of gross income.

Nationally these costs, if extrapolated to all dentists likely to use such supplies, amounted to from $1.7 to $3.1 million annually. These figures ignore the additional influence of the duties on imported materials used in prosthetic applicance fabrications by the dental laboratories, which costs are passed directly on to patients. This comes to an estimated additional $1.3 million annually in Canada or $175 per dentist per year. These latter data arise from the dental trade industry itself.

Analyses using this same source estimate that the impact of the new dental tariffs in the November 12, 1981 budget on dental care costs will be from $175 to $448 per dentist per year or from $1.3 to $3.26 million annually. As mentioned, this latter analysis concerns future costs. The lower figure of $175 refers to the cost of the duty alone plus the markups on this duty, whereas the higher figure contains in addition the duty on the imported laboratory materials.

Similarly, the cost effect of the tariffs on the public, direct service programs was also determined to be relatively small. It was estimated that expenditures on dental supply items were between 10.1% and 11.0% higher because of protective tariffs. This most probably translates to between 0.32% and 0.46% of total program costs, although for one smaller program the duties amounted to a 1.2% increase in total costs.*

Thus, while the mode of delivery of dental care is different than private practice, it seems that the costs attributable to the tariffs are very much of the same order (indeed, the relative per cents of the tariff cost to gross income or total program costs were very close). Another way of looking at the cost impact of the tariffs on direct service programs was revealed by estimating changing costs per child.

In Saskatchewan during the period when no duty was collected for items classified as forming part of a prosthesis in reconstructive dental surgery the published cost per enrolled child was $69.90. The protective tariffs if dropped from general supply items would have reduced this cost per child by 5.5¢, and had they been collected on the items used in reconstructive surgery, 25.5¢ would have been added per child.

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*Total program costs in each case include calculated capital costs since these programs provide care directly in school - or community-based dental clinics.

6.5 Observations from the Dental Industry

Because of the very close connection between the dental industry and the tariffs, a summary of some of the conclusions drawn in this chapter of the report is worth repeating here. The effect of the protective tariffs on dental health care costs was determined to be rather small relative to labour costs and inflationary considerations which appear to be much more important. However, the importing industry feels that because of the extra paper work required by the tariffs retail prices are higher by 5% to 10%. Although in the absence of tariffs retail price reductions of 15% to 20% due to these savings in extra handling costs plus the duty itself are theoretically possible, it is uncertain that decreases of this magnitude would actually be experienced by the dental provider (and his patients).

Given the current structure of the dental trade in Canada, substantial reductions in costs could only be achieved by a more efficient distribution system. Since the Canadian market for dental materials and products is relatively very small, and since improvements in oral health status and new materials will lead to a further shrinkage in the consumable market, domestic manufacturers must export their products or be highly specialized in a local area or have a very large share of the Canadian market to survive.

Tariffs seem to have little effect on the decisions by multinational companies whether or not to market a new product in Canada. The decision mainly centers on prospects for profit since in most instances no effective domestic competition exists. The peculiar variability in the Canadian tariff structure whereby there is, for example, no tariff for dental burs or dental gold (two current domestic products) is seen as a disincentive by (other) Canadian manufacturers. On the other hand, existing tariffs seem to encourage Canadian production and thus may be a small price to pay. However, the stimulation of broad-based domestic industry would require much higher protective tariffs, and this probably would invite foreign retaliation.

6.6 Sources of Increasing Costs in Care Provision

All authors in this report agree that the provision of dental care is highly labour intensive. Thus it comes as no surprise that a major contributor to the increasing costs of providing care in private and public dental practice is salaries and benefits. In the public, direct service programs this component represented 56.6% to 79.2% of total costs over the five program years examined. Following salaries, program expenses in order of their per cent of total costs are: travel

and accommodation (7.4% to 19.6%); capital costs (2.8% to 10.3%); and dental supplies (3.0% to 11.4%). Influences on the changes in cost per relative time unit of clinical service output were, in order of importance: salaries; travel and accommodation; dental supplies; capital costs; and postage and telephone charges. Over the two-year period ending in the fall of 1980 these accounted for 70.7%, 7.0%, 7.1%, 5.1% and 3.0% respectively, of the increase in unit costs.

Because output data from private practice were not available, calculations of expense component cost increases over time per unit of service were not possible. Expenses in private dental practice were reported to occuper a greater proportion of gross income over time (to 58% at present). It was shown that increases in the salaries and benefits component of expenses were a major explanatory factor in this shift.

Based on the limited time series available from private practice it appeared that the change in size of this component, which takes about 35% of expenses at the present time, was as much due to increases in the number and, probably, skill level (and salaries) of those employed by the dentist as to excessive salary increments for office staff well above inflation. Despite the growth and dominance of the salary component, its contribution, if any, to greater practice efficiency and quality is more important than the simple observations possible here without the requisite output data.

Dental supplies were shown both in the provincial dental association and dental industry data to amount to from about 6% to 8% gross income (6.6% was the average using the private practice data alone). This expense component, along with that of office rent, maintenance and utilities was found to have a consistently low to moderate share of practice expenses over the three time periods studied. The observed growth of management fees as a large component (6%) of total practice expenses gains even greater significance when it is realized that no more than 50% of dental practices in some provinces and probably well under this in other provinces are incorporated. As with salaries, the changes (and thus real influence) of this factor in practice expenses standardized by units of service produced cannot be determined.

6.7 National and International Implications

Regarding the national and international economic implications of the dental tariffs not referred to above, the report suggests, among its findings, that the reimposition of the tariffs in the October 28, 1980 budget was not likely in contravention of the 1979 Tokyo Round of the General Agreement on Trades and Tariffs (GATT) because the reimposition merely

restored the tariffs to their levels at the time of the earlier GATT agreements. The legal issue, however, can only be decided by the appeal of a foreign government materially affected by the Canadian policy change. No such appeal has surfaced to date.

Also, it was concluded that the reimposition of the dental tariffs probably prevented our foreign trade balance from worsening.

6.8 Summary

The tariffs may apparently add from $2 to $3.3 million to Canada's annual dental care costs. This is less than one-half of one per cent of the nation's current dental bill. The tariffs do offer and have the potential to offer in the future other possible counter-balancing benefits (small and indeterminate though these may be) directly to Canadian industry and to dental care providers. On the other hand, if tariffs were removed the potential loss of jobs in manufacturing amalgam, denture materials, waxes and other consumables and the loss of a made-in-Canada price and of a secure Canadian supply of these materials are negative aspects that must be considered. On balance the tariffs are seen as necessary to encourage domestic manufacturing in the small Canadian market.

APPENDIX 1

BRIEF

OF THE

CANADIAN DENTAL ASSOCIATION

TO THE

STANDING SENATE COMMITTEE

ON

BANKING, TRADE AND COMMERCE

* * * * * * *

JUNE 1981

Oral Submission by Dr. Hicks

Mr. Chairman and Honourable Members of the Committee;

My name is Dr. Robert Hicks and I am a practising dentist. I am appearing before you on behalf of the Candian Dental Association. I am making this presentation in my capacity as a member of the Executive Council of the Association, and as Chairman of its Taxation Committee.

The Association is the national organization for the dental prefession in Canada, representing 8500 of the 10 000 dentists in Canada.

We are here to strongly object to the proposed amendment to Tariff Item 47810-1 contained in Bill C-50 which will impose tariff duties on dental materials used in reconstructive surgery, which items have by law been duty-free ever since Tariff item 47810-1 was introduced in 1963.

We are here as advocates of government dental health policies which will be in the best interests of Canadians. However, the proposed imposition of duties on dental materials will directly result in increased costs to dental patients, and therefore will not be in their best interest.

Our members will receive no economic benefit from the success of our submission, nor will they be economically injured by our failure. The increased costs to dental patients result from the fact that costs of dental materials are passed on without mark up to such patients.

By way of background I note the following:

Tariff Item 47810-1 has provided over the years that materials used in reconstructive surgery are not subject to duty. Notwithstanding this, the Government's practice was to collect duty on dental materials used in reconstructive surgery but not on materials used in reconstructive surgery when done by members of the medical profession.

In 1979 a Tariff Board decision held that the Government's practice was wrong, that is to say, such dental materials used in reconstructive surgery were not and are not subject to duty.

Now the Government wishes to reverse the law and impose duties only on dental materials.

Our Brief, which we have submitted today, sets forth the reasons for our objection to proposed amendment. I wish to highlight for the Committee certain of the key reasons for our objection.

(1) The proposed amendment is contrary to the public policy of ensuring that health costs are as low as is consistent with a high quality of care. The amendment is contrary to the current general duty free treatment of dental equipment, supplies and materials under the Customs Tariff and of being exempt from sales tax under the Excise Tax Act.

(2) The proposed amendment is unwarranted discrimination against the dental component of public health in that medical (not dental) materials for reconstructive surgery are duty-free.

(3) This proposed amendment will protect primarily one multiproduct manufacturer who manufactures one type of dental material known as amalgam. We submit that the price to the public for each job in the protected manufacturing sector is excessive.

(4) The proposed amendment penalizes access by Canadian dentists to new formulas and advanced technology developed outside of Canada with resultant effects on the cost of dental health care.

(5) The proposed amendment is in violation of the spirit of Canada's most recent commitments under the General Agreement on Trade and Tariffs.

(6) The decision to make the proposed change was made without prior consultation with dentists and without full consideration of the issues. More time is required to analyse the proposed changes and their impact.

The Department of Finance takes the position that the Government always intended that dental (not medical) materials for reconstructive surgery be subject to duty. We do not see any basis for such a position and we expand on this in our brief.

The Department of Finance has recently stated that it will complete a review on the dutiable status of dental products, after the proposed amendment is implemented. We see no compelling logic in hastily changing existing law at the expense of dental patients and afterwards reviewing the issues.

The cost of increased dental materials will fall primarily on the most basic reconstructive surgery, that of filling cavities. The impact will therefore be greatest in the dental health maintenance of the average Canadian dental patient.

The Canadian Dental Association recommends that the proposed amendment which will impose duty on dental materials used in reconstructive surgery be deleted from Bill C-50 and that duty-free status be maintained in accordance with the laws of Canada, which have been in force since 1963.

I would be pleased to answer any questions the Committee may have.

THE CANADIAN DENTAL ASSOCIATION SUBMISSION TO THE STANDING SENATE COMMITTEE ON BANKING, TRADE AND COMMERCE ON THE PROPOSED CHANGES TO TARIFF ITEM 47810-1 AND THE CONSEQUENTIAL EFFECT ON TARIFF ITEM 47900-1 UNDER BILL C-50

Introduction

The Canadian Dental Association objects to the proposed changes to the Customs Tariff which will result in the elimination of duty-free status for dental materials used in reconstructive surgery.

As a background to our objection, we would like to briefly describe the structure, goals and activities of the Canadian Dental Association.

The Association is the national organization of the dental profession in Canada; both a federation of Provincial Dental Associations, who are corporate members of the Canadian Association, and an organization of the individual dentists in Canada.

The Association performs a multitude of services for dental public health in Canada and provides administrative and co-ordinating services for its members.

Our activities in the dental public health area include: accreditation of university schools of dentistry and allied educational programs; approval of commercial products which can assist in promoting dental health; testing of dental materials and assessment of their quality; organization and promotion of National Dental Health Month; and fielding inquiries from Government, social agencies and the general public respecting dental care.

In submitting this brief, we are acting in our role as the advocates of dental health policies in Canada in the best interests of the Canadian public. Our members will receive no financial benefit from the success of our submission, nor will they be injured by our failure. One key point we wish to make is that increased costs related to dental materials are passed on to the patients.

Objection

The Canadian Dental Association strongly objects to the proposed amendment to Tariff Item 47810-1 contained in Bill C-50 (see Section 15(8) and Schedule VI) which will remove materials for use in reconstructive dental surgery from duty-free status.

It is our submission that the proposed amendment is objectionable on social, economic, legal and procedural grounds.

Our submission is founded on the following eight reasons, among others:

(1) The proposed amendment is contrary to the public policy of ensuring that health costs are as low as is consistent with a high quality of care. The amendment is contrary to the current general duty-free treatment of dental equipment, supplies and materials under the Customs Tariff and often being exempt from sales tax under the Excise Tax Act.

(2) The proposed amendment is unwarranted discrimination against the dental component of public health in that medical (not dental) materials for reconstructive surgery are duty-free.

(3) The proposed amendment is costly in light of the recent rapid escalation in the cost of materials, such as silver amalgam which has tripled in price during the past five years.

(4) This proposed amendment will protect primarily one multi-product manufacturer who manufactures one type of dental material known as amalgam. We submit that the price to the public for each job in the protected manufacturing sector is excessive.

(5) The proposed amendment penalizes access by Canadian dentists to new formulas and advanced technology developed outside of Canada with resultant effects on the cost of dental health care.

(6) The proposed amendment is in violation of the spirit of Canada's most recent commitments under the General Agreement on Trade and Tariffs.

(7) The decision to make the proposed change was made without prior consultation with dentists and without full consideration of the issues. More time is required to analyse the proposed changes and their impact.

(8) The social impact of the proposed change is regressive and will fall primarily on the average Canadian dental patient whose cost of dental health maintenance will increase. The proposed amendment will have no financial impact on dentists since such cost increase is passed on to the public.

Background to Tariff Item 47810-1 and Related Tariffs

We now outline briefly the history of Tariff Item 47810-1, and the tariff status of other dental supplies.

The main articles and materials that a dentist uses in his practice which are peculiar to him, are as follows: dental chair, x-ray equipment, dental instruments, dental protheses, (which are artificial parts to supply a defect to the body), sterilizing equipment, anaesthetic and oxygen administering apparatus and various materials such as amalgams, cements, synthetic composites, screws and liners used in reconstructive surgery. All of the above are, under present law, admitted into Canada duty-free from countries classified for tariff purposes as Most Favoured Nations. (see Appendix 1)

The proposed amendment would remove from such duty-free status the "materials" including amalgams used in dental reconstructive surgery, and those articles such as screws used by dentists in constructing dental prostheses.

The Tariff Board in its decision in the Unident case* dated February 16, 1979, held that the law in Canada is that dental materials used in reconstructive surgery are duty-free in that they qualify under Tariff Item 47810-1. The administrative practice of Revenue Canada before such case was to impose duties on dental materials notwithstanding that Revenue Canada had since 1963, when Tariff Item 47810-1 was introduced, not imposed duties on materials used in reconstructive surgery performed by the medical profession.

The government is now proposing an amendment which will impose duty on materials used in dental reconstructive surgery while still allowing materials used in reconstructive surgery performed by the medical profession to be duty-free.

Public Policy

The cost of health care has been of great concern to governments and the public. One of the goals of our society is that health care be accessible and of high quality. This public policy has been demonstrated through a wide range of government action, including duty-free status and federal sales tax exemption for equipment, supplies and materials related to public health. As previously mentioned, items specifically related to dentistry are generally not dutiable. In addition, dental equipment and supplies (with the exception of articles such as dentists' chairs) are exempt from federal sales tax under Schedule III to the Excise Tax Act (See Appendix 2).** Current amendments to the Excise Tax Act proposed in Bill C-57 specifically continue such tax exempt status (see Section 33 of Bill C-57, reproduced in Appendix 3).

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*Unident Limited and the Deputy Minister of National Revenue for Customs and Excise, Tariff Board Appeal No. 1377.

**Editor's Footnote: Not all equipment is exempt from sales tax.

These measures reflect the federal government's commitment to keeping the cost of health care to Canadians at as low a level as possible, in tandem with achieving a high quality of care.

This government policy was recognized by the Tariff Board Report in 1968 pursuant to Reference 134 on Equipment for Hospitals and other Institutions (Letter of Reference reproduced in Appendix 4). In its report, the Tariff Board explicitly recommended the continuation of duty-free status for goods in Tariff Item 47810-1 (surgical prostheses and materials used in reconstructive surgery, see Recommended Item IV of Reference 134 reproduced in Appendix 5) and the expansion of the scope of duty-free entry under Tariff Item 47600-1 (X-ray apparatus, instruments, sterilizers etc., see Recommended Item X of Reference 134 reproduced in Appendix 6). These recommendations were implemented.

Discrimination

The Tariff Board decision in the Unident case affirmed that dental materials should enter duty-free under Tariff Item 47810-1. The government's proposed amendment to such tariff item is to impose duties on materials for dental reconstructive surgery while allowing materials for reconstructive surgery by the medical profession to be duty-free. We submit that there is no justification for such discrimination.

It is important to note that imposition of duty on such dental materials has no effect on the income of dental practitioners. Dental materials are a pass-on item. Dentists include in their fees, without markup, the cost of dental materials used in each procedure. This is a principle of fee guidelines of Provincial Dental Associations. It is submitted that the effect of the imposition of duty will fall directly on our patients, not on dentists.

Rising cost of dental materials

The cost of the dental materials used in dental reconstructive surgery has risen dramatically. Dental amalgams, for example, have on average tripled in price since 1976.

It is estimated by the Association that on average a dentist spends approximately $8,500 per year on materials for use in dental reconstructive surgery. The imposition of duty would be costly to dental patients. If the government's proposed amendment is passed, such dental materials would be dutiable up to 17.5% (see Appendix 7).

The Association is extremely concerned that the combination of the general increase in costs of dental materials and the imposition of duty thereon is not in the best interests of the federal government's overall policy to contain health costs.

Assessment of Economic Argument for Protection

It is our understanding that the imposition of the tariff has been sought by a certain Canadian manufacturer of amalgam.

What economic analysis has led the Department of Finance to believe that amalgam production in Canada requires protection? As well, we seriously question the imposition of duties on all dental materials used in reconstructive surgery in order to protect one specific dental material.

If a manufacturer of amalgam merits government assistance, we submit that the proposed tariff protection is not an appropriate way for the government to provide such assistance. Such tariff protection creates a significant negative impact on the Canadian public in the area of health care costs.

We also question how the government arrived at a 14.4% tariff rate on amalgam. How reasonable is such tariff rate? Beyond a reasonable level a tariff impacts directly and more negatively on the public than the overall positive impact intended by government.

Government in such instances must obviously carefully examine the Canadian manufacturer or manufacturers being protected by any proposed tariff. If, for example, the principal beneficiary of a tariff is a multiproduct and financially stable company and the product being protected is not its principal product, then one reasonably expects that there must be a vitally important and compelling reason to impose any kind of tariff, let alone a tariff of 14.4%. We are convinced that circumstances exist in Canada to justify such a tariff on amalgam, let alone tariff protection on all dental materials.

Aside from such economic considerations, the government considers the importance of encouraging a material increase in employment in Canada by tariff protection. In this regard, it is important to note that the Tariff Board in Reference 134 explicitly recognized the conflict between protection for domestic producers and the interests of public health. The Tariff Board came down on the side of public health. It is also important to note that the additional jobs created in Canada may be minimal in this instance. We understand, for example, that the Canadian manufacturer of dental amalgam, employs less than 10 people for such production. What is the cost per job on a present employment basis or on a reasonable future projection when you consider the extra costs that may be incurred by dental patients as a result of the passing on by dentists of increased tariff costs. We suspect that such per job costs are exhorbitant and unjustified.

Consideration must also be given to what opportunity or likelihood the protected manufacturers have to materially break into foreign markets, and particularly into the United States market. We

understand, for example, that the principal Canadian manufacturer of dental materials, the manufacturer of amalgam, has a parent corporation in the United States which also manufactures the same product.

Access to World Technology

The Canadian Dental Association is very concerned with the distortion that the proposed tariff may have on Canadian dentists' access to new and advanced dental materials produced outside of Canada. Dentists, in endeavouring to mitigate costs to patients, may be hesitant to purchase such new and advanced materials.

For example, we submit that dentists will be denied full and free access to the full range of various amalgams and to new advances in amalgam products being made available outside of Canada. Silver alloy amalgams are continually being advanced in order to improve margin strength and to reduce problems due to the pressure of biting. The free flow of such dental materials across our borders is very important for public health in Canada and must not be discouraged in any way.

We do not believe it is sensible or prudent public health policy to add pricing distortion to product choice by imposition of a tariff in the particular circumstances outlined in this Brief.

International Agreement On Tariff Item 47810-1

Canada agreed in 1979 to tariff concessions resulting from the Tokyo Rounds for the General Agreement on Trade and Tariffs ("GATT"). One of Canada's commitments contained in Schedule V to the General Agreement was the reduction of the concession rate for Tariff Item 47810-1 from 15% to 9.2%, in eight equal reductions by January 1, 1987. As the Committee is no doubt aware, the Concession rate is the highest level of duty that Canada may charge to Most favoured Nations. Presently, there is no duty charged in Canada on goods within Tariff Item 47810-1.

The law in Canada, now, and at the time of the Tokyo Rounds is that dental materials used in dental reconstructive surgery are within Tariff Item 47810-1. We submit that the proposed imposition of a tariff under Bill C-50 on dental materials is in violation of Article II of GATT (See Appendix 8). Paragraph 5 of Article II is designed to prevent contracting nations from reclassifying goods contained in tariffs items covered by GATT in an attempt to escape their obligations. We submit that the proposed amendment is in direct contravention of such provision and of Canada's international commitment in that dental materials used in dental reconstructive surgery are being removed from Tariff Item 47810-1 and are being made subject to a higher tariff rate than they would otherwise be if they remained in Tariff Item 47810-1.

The Amendment Process

The Canadian Dental Association has serious reservations about the procedures followed by government in the amending process in respect of Tariff Item 47810-1.

The 1979 decision of the Tariff Board in the Unident case held that dental materials should enter Canada free of duty under Tariff Item 47810-1. This meant that the administrative practice of Revenue Canada of excluding dental materials from duty-free status had been contrary to law.

The Department of Finance in supporting their amendment to exclude dental materials used in dental reconstructive surgery from duty-free status, while materials used in reconstructive surgery by the medical profession are not so excluded, justify their position on the basis that it was always the intent and policy of the government to do exactly this. We submit that such an interpretation is not well founded. We have been presented with no evidence of such a policy, and in fact the Tariff Reference 134 (see Appendix 4) in 1968 explicitly reaffirmed the policy of a duty-free status for Tariffs Item 47810-1, which included materials for reconstructive surgery.

We further object to the fact that the proposed change to Tariff Item 47810-1 was introduced without adequate consultation with the dental profession and other interested organizations and parties.

The Department of Finance has recently stated that it will complete a review on the dutiable status of dental products after the proposed amendment is implemented. We see no compelling logic in blindly changing existing law at the expense of dental patients and afterwards reviewing the issues.

Social Impact of the Proposed Amendment

We reiterate that the proposed tariff changes have the effect of increasing dental costs to the public. Dental care is an essential part of personal health management. The public is not well served by an amendment which primarily protects one product of one manufacturer, particularly in the circumstances of the case before you. Relatively few jobs are involved. We are not convinced that the facts justify such tariff protection. We feel that inadequate consideration has been given to the effect on public health of the lack of free access to new and advanced dental materials from outside Canada.

The cost of increased dental materials will fall primarily on the most basic dental reconstructive procedure, that of filling cavities. The impact will therefore be greatest on the dental health maintenance of the average Canadian dental patient.

Summary

The Candian Dental Association recommends that the proposed amendment which will impose duty on materials used in reconstructive dental surgery be deleted from Bill C-50 and that duty-free status be maintained in accordance with the present laws of Canada, which have been in force since 1963.

We thank the Committee for its time and attention in reviewing our submission, and trust in the Committee's good judgment.

APPENDIX I

Current Treatment of Dental Equipment, Supplies and Mate ials Under the Customs Tariff.

TARIFF ITEM	DESCRIPTION	M.F.N. DUTY
47810-1	Aural, nasal, mastectomy and other medical or surgical prostheses; materials for use in reconstructive surgery; ileostomy, colostomy and urinary appliances or articles other than infants' pants and diapers, designed to be worn by an individual; materials and articles required therewith for proper application and maintenance	Free
47900-1	Materials and articles for use exclusively in the manufacture of the goods enumerated in tariff items 47600-1, 47605-1, 47805-1, 47810-1, 47815-1, 47820-1, 47826-1, 47830-1 and 47835-1	Free
42300-1	Dental chairs; dental units; electric dental engines; dental cuspidors; parts of the foregoing	Free
47600-1	X-ray apparatus and X-ray film; microscopes, illuminating devices and stands for use therewith; the following surgical, dental, veterinary and diagnostic articles: instruments; sterilizers; cobalt-therapy units; anaesthesia, surgical suction and oxygen administering apparatus including motive power and wall outlets but not piping systems. Parts of all the foregoing; electric light lamps designed for use with all the foregoing; portable cases and containers for all the foregoing	Free

APPENDIX 2

Excise Tax Act, Treatment of Dental Supplies

Articles exempted

29. (1) The tax imposed by section 27 does not apply to the sale or importation of the articles mentioned in Schedule III.

Articles partially exempted

(2) The tax imposed by section 27 shall be imposed only on fifty per cent of the sale price if manufactured in Canada, or fifty per cent of the duty-paid value if imported, of metric retail scales having a maximum weighing capacity of one hundred kilograms and specifically designed for the weighing of goods in retail operations, when sold or imported before July 1, 1981.

Articles partially exempted

(3) There shall be imposed, levied and collected only five-twelfths of the tax imposed by section 27 on the sale or importation of the articles enumerated in Schedule V.

Further articles exempted

(4) The taxes imposed by Parts III to V inclusive, do not apply to goods imported under Customs Tariff items 69005-1, 69305-1, 69310-1, 69315-1, 70305-1, 70310-1, 70315-1, 70320-1, 70321-1, 70405-1, 70410-1, 70505-1 and 70800-1.

(5) [Repealed 1970-71-72, c. 62. s. 2(2).]

Interpretation

(6) The reference in Part VII of Schedule III

(a) to tariff items 47600-1 and 47815-1 shall be read and construed as a reference to those items as they read immediately before June 4, 1969, and

(b) to tariff item 69520-1 shall be read and construed as a reference to that item as it read immediately before June 19, 1971, R.S., c. E-13, s. 29; 1970-71-72, c. 62, s. 2; 4, 1973-74, c. 12, s. 1; 1974-75-76 c. 24, s. 15; 1976-77, c. 6, s. c. 15, s. 8.

SCHEDULE III

PART VII

GOODS ENUMERATED IN CUSTOMS TARIFF ITEMS

1. Goods enumerated in Customs Tariff items 17305-1, 17310-1, 17315-1, 17320-1, 17325-1, 17330-1, 20910-1, 35205-1, 35210-1, 36400-1, 40601-1, 40602-1, 40900-1, 40902-1, 40904-1, 40906-1, 40908-1, 40910-1, 40912-1, 40914-1, 40916-1, 40918-1, 40920-1, 40922-1, 40924-1, 40926-1, 40928-1, 40930-1, and complete parts thereof, 40932-1, 40934-1, 40948-1, 40950-1, 40956-1, 40958-1, 40960-1, 43600-1, 43700-1, 44037-1, 44040-1, 46000-1, 47600-1, 47605-1, 47610-1, 47805-1, 47810-1, 47815-1, 48000-1, 48005-1, 48100-1, 48105-1, 66310-1, 66600-1, 66700-1, 68200-1, 68205-1, 69005-1, 69200-1, 69205-1, 69210-1, 69305-1, 69310-1, 69315-1, 69505-1, 69510-1, 69515-1, 69520-1, 69525-1, 69605-1, 69610-1, 69615-1, 69700-1, 69800-1, 69900-1, 70000-1, 70100-1, 70200-1, 70405-1, 70410-1, 70800-1, 70815-1, 78600-1.

2. Articles and materials that enter into the cost of manufacture of the goods enumerated in Customs Tariff items 40900-1, 40902-1, 40904-1, 40906-1, 40908-1, 40910-1, 40912-1, 40914-1, 40916-1, 40918-1, 40920-1, 40922-1, 40924-1, 40926-1, 40928-1, 40932-1, 40934-1, 40944-1, and 43915-1, when imported by manufacturers for use exclusively in the manufacture in their own factories of the goods enumerated in the foregoing tariff items under regulations prescribed by the Minister.

3. Articles and materials for use exclusively in the manufacture of goods enumerated in Customs Tariff items 17305-1, 17310-1, 17315-1, 17320-1, 17325-1, 17330-1, 40601-1, 40602-1, 40900-1, 40902-1, 40904-1, 40906-1, 40908-1, 40910-1, 40912-1, 40914-1, 40916-1, 40918-1, 40920-1, 40922-1, 40924-1, 40926-1, 40928-1, 40930-1, 40932-1, 40934-1, 40948-1, 40950-1, 40956-1, 40958-1, 40960-1, 41010-1, 41100-1, 41110-1, 43915-1, 44037-1, 44040-1, 47600-1, 47605-1, 48000-1, 48005-1, 48100-1, 48105-1, 66300-1, 66305-1, 66310-1, 66600-1, 66700-1, 69605-1, 69610-1.

4. Materials, not including plant equipment consumed in process of manufacture or production, that enter directly into the cost of goods enumerated in Customs Tariff items 40601-1, 40602-1, 40900-1, 40902-1, 40904-1, 40906-1, 40908-1, 40910-1, 40912-1, 40914-1, 40916-1, 40918-1, 40920-1, 40922-1, 40924-1, 40926-1, 40928-1, 40930-1, 40932-1, 40934-1, 40948-1, 40950-1, 41010-1, 41100-1, 41110-1, 43915-1, 44037-1, 44040-1, 47600-1, 47605-1, 48000-1, 48005-1, 66300-1, 66305-1, 66600-1, 66700-1, 69605-1, 69610-1.

Editor's Footnote: Part VII of Schedule III of the Excise Tax Act as indicated in the Canadian Dental Association submission was repealed by the Budget of October 28, 1980, affecting tariff item 47810-1, the prosthesis item, and effective January 1, 1981.

With effect from March 30, 1966 the Excise Tax Act has provided sales tax exemption for dental prostheses (artificial teeth and articles and materials for use in the manufacture thereof) as named in Part VIII of Schedule III, Section 5.

PART VIII

HEALTH

1. Any material, substance, mixture, compound or preparation, of whatever composition or in whatever form, including materials for use exclusively in the manufacture thereof, sold or represented for use in the diagnosis, treatment, mitigation or prevention of a disease, disorder, abnormal physical state, or the symptoms thereof, in humans or animals or for restoring, correcting or modifying organic functions in humans or animals, but not including cosmetics.

2. Articles and materials for the sole use of any bona fide public hospital certified to be such by the Department of National Health and Welfare, when purchased in good faith for use exclusively by the said hospital and not for resale.

3. Artificial breathing apparatus purchased or leased on the written order of a registered medical practitioner by an individual afflicted with a respiratory disorder for his own use.

3.1 Mechanical percussors for postural drainage treatment purchased on the written order of a registered medical practitioner.

4. Artificial eyes.

5. Artificial teeth and articles and materials for use in the manufacture thereof.

6. Hearing aids and parts therefor, including batteries specifically designed for use therewith.

7. Laryngeal speaking aids and parts therefor, including batteries specifically designed for use therewith.

8. Plastic surgical drapes for use during surgical operations and articles and materials for use in the manufacture thereof.

9. Prepared surgical skin closure devices and articles and materials for use in the manufacture thereof.

10. Prepared surgical sutures.

11. Eyeglasses and contact lenses for the treatment or correction of a defect of vision when prepared in accordance with the prescription of a medical practitioner or an optometrist and parts therefor.

12. Communication devices, for use with telegraph or telephone apparatus, purchased or leased on the written order of a registered medical practitioner for the assistance of the deaf and the dumb.

13. Invalid chairs, commode chairs, walkers, wheel-chair lifts and similar aids to locomotion, with or without wheels; motive power and wheel assemblies therefor; patterning devices; toilet, bath and shower seats; all the foregoing specially designed for the disabled, and such other equipment as may be prescribed by regulation of the Governor in Council as being aids to the mobility of the disabled; accessories and attachments for all the foregoing, including batteries specially designed for use therewith.

14. Selector control devices, purchased or leased on the written order of a registered medical practitioner, specially designed for use by physically handicapped persons to enable such persons to select, energize or control various household, industrial and office equipment.

15. Heart monitoring devices, purchased or leased on the written order of a registered medical practitioner by an individual afflicted with heart disease for his own use, including batteries specially designed for use therewith.

16. Hospital beds purchased or leased on the written order of a registered medical practitioner by an incapacitated person for his own use.

17. Needles and syringes designed for medical purposes.

18. Articles and materials for use exclusively in the manufacture or production of the tax exempt products mentioned in this Part.

APPENDIX 3

Continued Exemption For Dental Supplies Under Bill C-57*

33. (1) Part VIII of Schedule III to the said Act is amended by adding thereto, immediately after section 6 thereof, the following section:

"6.1 Devices designed to convert sound to light signals for use by the deaf, when purchased on the written order of a registered medical practitioner."

(2) Section 18 of Part VIII of Schedule III to the said Act is repealed and the following substituted therefor:

"18. Artificial limbs, with or without power, and all accessories and devices therefor, spinal and other orthopaedic braces: specially constructed appliances made to order for a person having a crippled or deformed foot or ankle; parts of the foregoing.

19. Aural, nasal, mastectomy and other medical or surgical prostheses; materials for use in reconstructive surgery; ileostomy, colostomy and urinary appliances or similar articles designed to be worn by an individual; articles and materials, not including cosmetics, necessary for the proper application and maintenance of the foregoing.

20. Canes and crutches designed for use by the handicapped; attachments, accessories and parts therefor.

21. Surgical and dental instruments of any material; surgical needles; clinical thermometers and cases therefor; X-ray apparatus and X-ray film; microscopes valued at not less than fifty dollars each retail; parts of the foregoing; electric light lamps designed for use with the foregoing.

22. Articles and materials for use exclusively in the manufacture or production of the tax-exempt goods mentioned in this Part."

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*Editor's Footnote: Wording of Bill C-57 as passed by the House of Commons, June 22, 1981.

(Second section of Editor's footnote on p. 107.)

Section 29 of Bill C-57

Articles exempted

29. (1) The tax imposed by section 27 does not apply to the sale or importation of the articles mentioned in Schedule III.

Articles partially exempted

(2) The tax imposed by section 27 shall be imposed only on fifty per cent of the sale price if manufactured in Canada or fifty per cent of the duty-paid value if imported, of metric retail scales having a maximum weighing capacity of one hundred kilograms and specifically designed for the weighing of goods in retail operations, when sold or imported before January 1, 1984. R.S., c. E-13, s.29; 1970-71-72, c.62, s.2; 1973-74, c.12, s.1; 1974-75-76, c.24, s.15; 1976-77, c.6, s.4, c.15, s.8; 1980-81, c.68, s.12.

(3) and (4) (Repealed, 1980-81, c.68, s.12.)

(5) (Repealed, 1970-71-72, c.62, s.2.)

(6) (Repealed, 1980-81, c.68, s.12.)

PART VII

GOODS ENUMERATED IN CUSTOMS TARIFF ITEMS

1. Goods enumerated in tariff item 69210-1, 69900-1, 70100-1 or 70815-1 in Schedule A to the Customs Tariff.

2. Goods enumerated in tariff item 69005-1, 70000-1, 70200-1, 70305-1, 70306-1, 70310-1, 70311-1, 70312-1, 70313-1, 70320-1, 70405-1, 70505-1 or 70800-1 in Schedule A to the Customs Tariff.

3. and 4. (Repealed, 1980-81, c.68, s.32.)

(Editor's footnote continued)

PART VIII

HEALTH

1. Any material, substance, mixture, compound or preparation, of whatever composition or in whatever form, including materials for use exclusively in the manufacture thereof, sold or represented for use in the diagnosis, treatment, mitigation or prevention of a disease, disorder, abnormal physical state, or the symptoms thereof, in humans or animals or for restoring, correcting or modifying organic functions in humans or animals, but not including cosmetics.

2. Articles and materials for the sole use of any bona fide public hospital certified to be such by the Department of National Health and Welfare, when purchased in good faith for use exclusively by the said hospital and not for resale.

3. Artificial breathing apparatus purchased or leased on the written order of a registered medical practitioner by an individual afflicted with a respiratory disorder for his own use.

3.1 Mechanical percussors for postural drainage treatment purchased on the written order of a registered medical practitioner.

4. Artificial eyes.

5. Artificial teeth and articles and materials for use in the manufacture thereof.

6. Hearing aids and parts therefor, including batteries specifically designed for use therewith.

6.1 Devices designed to convert sound to light signals for use by the deaf, when purchased on the written order of a registered medical practitioner.

7. Laryngeal speaking aids and parts therefor, including batteries specifically designed for use therewith.

8. Plastic surgical drapes for use during surgical operations and articles and materials for use in the manufacture thereof.

(Editor's footnote continued)

9. Prepared surgical skin closure devices and articles and materials for use in the manufacture thereof.

10. Prepared surgical sutures.

11. Eyeglasses and contact lenses for the treatment or correction of a defect of vision when prepared in accordance with the prescription of a medical practitioner or an optometrist and parts therefor.

12. Communication devices, for use with telegraph or telephone apparatus, purchased or leased on the written order of a registered medical practitioner for the assistance of the deaf and the dumb.

13. Invalid chairs, commode chairs, walkers, wheel-chair lifts and similar aids to locomotion, with or without wheels; motive power and wheel assemblies therefor; patterning devices; toilet, bath and shower seats; all the foregoing specially designed for the disabled, and such other equipment as may be prescribed by regulation of the Governor in Council as being aids to the mobility of the disabled; accessories and attachments for all the foregoing, including batteries specially designed for use therewith.

14. Selector control devices, purchased or leased on the written order of a registered medical practitioner, specially designed for use by physically handicapped persons to enable such persons to select, energize or control various household, industrial and office equipment.

15. Heart monitoring devices, purchased or leased on the written order of a registered medical practitioner by an individual afflicted with heart disease for his own use, including batteries specially designed for use therewith.

16. Hospital beds purchased or leased on the written order of a registered medical practitioner by an incapacitated person for his own use.

17. Needles and syringes designed for medical purposes.

(Editor's footnote continued)

18. Artificial limbs, with or without power, and all accessories and devices therefor; spinal and other orthopaedic braces; specially constructed appliances made to order for a person having a crippled or deformed foot or ankle; parts of the foregoing.

19. Aural, nasal, mastectomy and other medical or surgical prostheses; materials for use in reconstructive surgery; ileostomy, colostomy and urinary appliances or similar articles designed to be worn by an individual; articles and materials; not including cosmetics, necessary for the proper application and maintenance of the foregoing.

20. Canes and crutches designed for use by the handicapped, attachments, accessories and parts therefor.

21. Surgical and dental instruments of any material; surgical needles; clinical thermometers and cases therefor; X-ray apparatus and X-ray film; microscopes valued at not less than fifty dollars each, retail; parts of the foregoing; electric light lamps designed for use with the foregoing.

22. Articles and materials for use exclusively in the manufacture or production of the tax-exempt goods mentioned in this Part.

APPENDIX 4

Minister's Letter of Reference, Tariff Board Reference 134

Ottawa, March 24, 1964

Mr. L.C. Audette
Chairman
The Tariff Board
Ottawa.

Dear Mr. Audette:

As I indicated in my Budget Speech of March 16, I have received a number of representations respecting the special end-use items in the tariff which provide for the free entry of certain equipment and materials for use by hospitals, educational and religious institutions. It has been suggested, on the one hand, that the existing tariff items be broadened to cover a wider range of commodities and that duty free entry privileges be extended to additional groups and organizations, both non-profit and commercial, which do not currently enjoy such benefits.

On the other hand, it has been suggested that duty free entry under these items should be restricted to goods which cannot be supplied by Canadian producers.

It has also been suggested that the reference to "philosophical" instruments and apparatus in tariff items 462 and 696 is out of date and in need of review.

I, therefore, direct the Tariff Board to make a study and report under section 4(2) of the Tariff Board Act on items 476a, 476b and 696 in Schedule "A" of the Customs Tariff. The Board's study should include tariff item 462 in so far as it relates to philosophical instruments. The Board may also include in its study other items which it considers relevant to its enquiry.

If the Board's study should indicate that amendments to the Customs Tariff are desirable, I would request the Board to prepare a revised schedule of tariff items, with recommendations as to rates of duty.

Yours sincerely,

W.L. GORDON

APPENDIX 5

Tariff Board Reference 134, Recommendations Respecting Tariff Item 47810-1

Recommended Item IV

IV	Aural, nasal, mastectomy and other medical or surgical prostheses; materials for use in reconstructive surgery; ileostomy, colostomy and urinary appliances or articles other than infants' pants and diapers, designed to be worn by an individual; materials and articles required therewith for proper application and maintenance		
	Free	Free	Free

This Recommended Item reproduces the words and rates of Existing Item 47810-1 with the addition of the words "or articles other than infants' pants and diapers".

The proposals of the Canadian Medical Association included free entry of incontinence equipment designed to be worn by the individual. The list of such equipment extends beyond the goods which would ordinarily be called appliances, and Recommended Item IV, by the addition of the word "articles", is intended to provide free entry for articles such as pads and rubber and plastic pants which are designed to be worn by handicapped persons, but not for incontinence goods normally used for infants and small children.

This Recommended Item, then, would include these additional articles as well as the goods now enumerated in tariff item 47810-1; imports under the latter item, in 1966, were valued at almost one million dollars.

APPENDIX 6

Tariff Board Reference 134, Recommendations Respecting Tariff Item 47600-1

Recommended Item X

X	X-ray apparatus and X-ray film; microscopes, illuminating devices and stands for use therewith; the following surgical, dental, veterinary and diagnostic articles: instruments; sterilizers; cobalt-therapy units; anesthesia, surgical suction and oxygen administering apparatus including motive power and wall outlets but not piping systems. Parts of all the foregoing; electric light lamps designed for use with all the foregoing; portable cases and containers for all the foregoing		
	Free	Free	Free

This Recommended Item would provide, without restriction as to end-use or made-in-Canada status, for surgical suction apparatus including motive power; such apparatus is now eligible for free entry under Existing Item 47610-1 but only when of a class or kind not made in Canada and for the use of a public hospital.

With the exception of certain portable containers, the other goods enumerated in this Recommended Item are now admitted free of duty under Existing Item 47600-1. The minimum value for microscopes which appears in that existing item would be eliminated because it is considered to be obsolete and unnecessary. The Recommended Item would include clinical thermometers, surgical needles and other surgical and dental instruments now enumerated in Existing Item 47600-1. For purposes of clarification, veterinary and diagnostic uses are mentioned explicitly, as are sterilizers, cobalt-therapy units and anesthesia, surgical suction and oxygen administering apparatus; piping, for the latter three, which is to be incorporated into the building would be explicitly excluded.

The Recommended Item further provides for portable containers for the articles enumerated in the item, whereas Existing Item 47600-1 provides only for cases for clinical thermometers.

Imports under Existing Item 47600-1 were valued at some $46 million in 1966.

APPENDIX 7

Effect of Proposed Amendment to the Customs Tariff on Selected Dental Materials Used in Reconstructive Surgery

From: Duty-Free Status
To:

Product	Included in Tariff Item	M.F.N. Rate
Amalgams	92849-1	14.4%
Amalgams (not of precious metals)	92858-1	14.4%
Screws (dental)	43010-2	17.5%
Plastic articles, emulsions, powders, dispersions, mouldings	93907-1	17.0%
Dental adhesives	23200-1	18.1%
Polyacrylic type moulding compositions	93902-48	11.9%

APPENDIX 8

Article II of the General Agreement on Trade and Tariffs

Article II

Schedules of Concessions

1. (a) Each contracting party shall accord to the commerce of the other contracting parties treatment no less favourable than that provided for in the appropriate Part of the appropriate Schedule annexed to this Agreement.

(b) The products described in Part I of the Schedule relating to any contracting party, which are the products of territories of other contracting parties, shall, on their importation into the territory to which the Schedule relates, and subject to the terms, conditions or qualifications set forth in that Schedule, be exempt from ordinary customs duties in excess of those set forth and provided for therein. Such products shall also be exempt from all other duties or charges of any kind imposed on or in connection with importation in excess of those imposed on the date of this Agreement or those directly and mandatorily required to be imposed thereafter by legislation in force in the importing territory on that date.

(c) The products described in Part II of the Schedule relating to any contracting party which are the products of territories entitled under Article I to receive preferential treatment upon importation into the territory to which the Schedule relates shall, on their importation into such territory, and subject to the terms, conditions or qualifications set forth in that Schedule, be exempt from ordinary customs duties in excess of those set forth and provided for in Part II of that Schedule. Such products shall also be exempt from all other duties or charges of any kind imposed on or in connection with importation in excess of those imposed on the date of this Agreement or those directly and mandatorily required to be imposed thereafter by legislation in force in the importing territory on that date. Nothing in this Article shall

prevent any contracting party from maintaining its requirments existing on the date of this Agreement as to the eligibility of goods for entry at preferential rates of duty.

2. Nothing in this Article shall prevent any contracting party from imposing at any time on the importation of any product:

(a) A charge equivalent to an internal tax imposed consistently with the provisions of paragraph 2 of Article III in respect of the like domestic product or in respect of an article from which the imported product has been manufactured or produced in whole or in part;

(b) any anti-dumping or countervailing duty applied consistently with the provisions of Article VI;

(c) fees or other charges commensurate with the cost of services rendered.

3. No contracting party shall alter its method of determining dutiable value or of converting currencies so as to impair the value of any of the concessions provided for in the appropriate Schedule annexed to this Agreement.

4. If any contracting party establishes, maintains or authorizes, formally or in effect, a monopoly of the importation of any product described in the appropriate Schedule annexed to this Agreement, such monopoly shall not, except as provided for in that Schedule or as otherwise agreed between the parties which initially negotiated the concession, operate so as to afford protection on the average in excess of the amount of protection provided for in that Schedule. The provisions of this paragraph shall not limit the use by contracting parties of any form of assistance to domestic producers permitted by other provisions of this Agreement.

5. If any contracting party considers that a product is not receiving from another contracting party the treatment which the first contracting party believes to have been contemplated by a concession provided for in the appropriate Schedule annexed to this Agreement, it shall bring the matter directly to the attention of the other contracting party. If the latter agrees that the treatment contemplated was that claimed by the first contracting party, but declares that such treatment cannot be accorded because a court or other proper authority has ruled to the effect that the product involved cannot be classified under the tariff laws of such contracting party so as to

permit the treatment contemplated in this Agreement, the two contracting parties, together with any other contracting parties substantially interested, shall enter promptly into further negotiations with a view to a compensatory adjustment of the matter.

6. (a) The specific duties and charges included in the Schedules relating to contracting parties members of the International Monetary Fund, and margins of preference in specific duties and charges maintained by such contracting parties, are expressed in the appropriate currency at the par value accepted or provisionally recognized by the Fund at the date of this Agreement. Accordingly, in case this par value is reduced consistently with the Articles of Agreement of the International Monetary Fund by more than twenty per centum, such specific duties and charges and margins of preference may be adjusted to take account of such reduction; Provided that the CONTRACTING PARTIES (i.e., the contracting parties acting jointly as provided for in Article XXV) concur that such adjustments will not impair the value of the concessions provided for in the appropriate Schedule or elsewhere in this Agreement, due account being taken of all factors which may influence the need for, or urgency of, such adjustments.

(b) Similar provisions shall apply to any contracting party not a member of the Fund, as from the date on which such contracting party becomes a member of the Fund or enters into a special exchange agreement in pursuance of Article XV.

7. The Schedules annexed to this Agreement are hereby made an integral part of Part I of this Agreement.

EDITOR'S APPENDIX I

Information on Amendments to the Excise Tax Act and Lists of Regional Customs Offices and Regional Excise Offices

Information on Amendments to the Excise Tax Act

The Excise Branch of the Department of National Revenue nas recently prepared a memorandum on the subject surgical and dental instruments relating to the exempting provision found in Section 21 of Part VIII of Schedule III of the Excise Tax Act. This information paper concerning the application of the federal sales tax to such instruments will be available soon from Regional Excise Offices which are listed in this editor's appendix.

REGIONAL CUSTOMS OFFICES

Region	Address	Telephone (Public Inquiries)
Atlantic	Customs Office 6169 Quinpool Road Halifax, Nova Scotia B3J 3G6	(902) 426-2911
Quebec	Customs Office 2 St. André St. Québec (Québec) G1K 7P6	(418) 694-4445
Montreal	Customs Office 400 Youville Square Montréal (Québec) H2Y 3N4	(514) 283-2953
Ottawa	Customs Office 360 Coventry Road Ottawa, Ontario K1K 2C6	8:00 to 4:30 p.m. (613) 993-0534 After 4:30 p.m. and wknds (613) 998-3326

Region	Address	Telephone
Toronto	Customs Office P.O. Box 10, Station "A" Manulife Centre 10th floor 55 Bloor Street West Toronto, Ontario M5W 1A3	Weekdays 8:00 a.m. to 4:30 p.m. (416) 966-8022 Sat., Sun. and holidays (416) 676-3643
Hamilton	Customs Office 10 John Street South Hamilton, Ontario L8N 3V8	(416) 523-2891 evenings and wknds (416) 679-6202
London	Customs Office P.O. Box 5940 Terminal "A" 451 Talbot Street London, Ontario N6A 5C9	8:00 a.m. to 12:00 mdnt 7 days a week (519) 679-4131
Windsor	Customs Office 185 Ouellette Street Windsor, Ontario N9A 4H8	 (519) 254-9202 (Exts. 254/55)
Winnipeg	Customs Office Federal Building 269 Main Street Winnipeg, Manitoba R3C 1B3	 (204) 949-6004
Saskatchewan	Customs Office 204 Towne Square 1919 Rose Street Regina, Saskatchewan S4P 3P1	 (306) 359-6212
Alberta	Customs Office 220-4th Avenue S.E. Suite 720 Calgary, Alberta T2P 2M7	8:00 a.m. to 4:00 p.m. (403) 231-4660
Pacific	Customs Office 1001 West Pender Street Vancouver, B.C. V6E 2M8	 (604) 666-1545

REGIONAL EXCISE OFFICES

Region	Address	Tel. No.
Atlantic	6169 Quinpool Road 2nd Floor P.O. Box 1658 Halifax, N.S. B3J 2Z8	(902) 426-3758
Québec	410 Charest Blvd E. 7th Floor P.O. Box 2117, P.O. Terminal Québec City, Québec G1K 7M9	(418) 694-4376
Montréal	400 Youville Square 7th Floor P.O. Box 6092, Station "A" Montréal, Québec H3C 3H3	(514) 283-6200
Ottawa	360 Coventry Road P.O. Box 8257 Ottawa, Ontario K1G 3H7	(613) 993-0040
Toronto	25 St Clair, Av E. 4th Floor P.O. Box 100, Station "Q" Toronto, Ontario M4T 2L7	(416) 966-6561
S.W. Ontario	Dominion Public Bldg. 3rd Floor 457 Richmond Street P.O. Box 5548 Terminal A London, Ontario N6A 4R3	(519) 679-4145
Winnipeg	Royal Bank Bldg. 13th Floor 220 Portage Avenue P.O. Box 1022 Winnipeg, Manitoba R3C 2W2	(204) 949-4016

Region	Address	Tel. No.
Calgary	Federal Bldg. Room 470 220-4th Ave. S.E. P.O Box 2525 Station "M" Calgary, Alberta T2P 3B7	(403) 231-5678
Pacific	460 Nanaimo Street P.O. Box 69090 Station "K" Vancouver, B.C. V5K 4X2	(604) 666-3753

EDITOR'S APPENDIX II

Dental Prosthetic Tariff Items, effective pending passage by Parliament, as of November 12, 1981, as shown in SCHEDULE "A" of the Customs Tariff.

Tariff Items Date and No. of Memo	Goods Subject to Duty and Free Goods	British Preferential Tariff	Most Favoured-Nation Tariff	General Tariff	General Preferential Tariff	U.K. and Ireland
*	Dental prostheses and parts thereof; materials that form a component part of the foregoing when used in the manufacture of dental prostheses or that are specifically designed for use during the manufacture of dental prostheses but do not form a component part thereof; materials, excluding anaesthetics, for use in dental reconstructive surgery:					
*48001-1	Other than the following	Free	Free	25 p.c.	Free	Free
*48002-1	Dentures, bridges, crowns, and other similar dental prostheses	14.8 p.c.	14.8 p.c.	25 p.c.	9.5 p.c.	14.8 p.c.
	MFN scheduled rate changes: Table 2, Line 29 GPT scheduled rate changes: Table 3, Line 29					
*48003-1	Artificial teeth, not mounted, and material for use only in the manufacture thereof .	Free	Free	Free	Free	Free
*48004-1	Dental casting wax, dental plasters, dental stone, silica sand investments and other similar materials for making casts or models for dental purposes	Free	Free	25 p.c.	Free	Free
*48005-1	Acrylic moulding compositions, whether or not fully formulated, when for use in the manufacture of dental prostheses	10 p.c.	10 p.c.	25 p.c.	6.5 p.c.	10 p.c.
*48006-1	Composition metal, but not including such metals in powder or pellet form, for dental purposes	Free	6.8 p.c.	10 p.c.	Free	5.5 p.c.
	MFN scheduled rate changes: Table 2, Line 82					
*48007-1	Metal alloys, including alloys of precious metals, prepared for use in dental amalgams by the mere addition of mercury; dental amalgams and other similar dental filling materials	10 p.c.	12.5 p.c.	25 p.c.	8 p.c.	12.5 p.c.
*48015-1	Models or casts used in the manufacture of dentures, bridges, crowns or other similar dental prostheses	Free	Free	25 p.c.	Free	Free
*48016-1	Dental impression compounds including impression waxes, whether or not in kit form	7.5 p.c.	7.5 p.c.	25 p.c.	5 p.c.	7.5 p.c.

* Pending passage by Parliament of the Notice of Ways and Means Motion tabled on November 12, 1981 (D47-543E), entries under these tariff items will be accepted "Subject to Amendment".

January 1, 1982